University of Alberta

Unknowing the Future: Meditations on the Time of Teaching

by

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Abstract

This dissertation is an inquiry into experiences, meanings, and possibilities of teaching in a time of great global despair, suffering, and ecological collapse. It asks the question: In what ways it possible to fully and humanly inhabit the institutional and ecological spaces of teaching and learning in timeful and embodied ways when these very spaces seem themselves to be drowning in floods of injustice, and crumbling under the future-oriented pressures and discourses of globalized capitalism?

Amongst the purposes of this work has been seeking ways of imagining and speaking about teaching and learning that hold spaces open for difference, diversity and multiplicity. This has required inquiring into how the work of teaching might deliberately inhabit temporalities and sensibilities other than the dominant time of the market propelled as it is by its illusions of linear time and progress. The question of the *time of teaching* is one of the interwoven threads that winds through this dissertation. It opens into other questions that form four distinct chapters or meditations: a) what does it mean to deconstruct chronological and linear constructions of time in relation to the project of schooling and curriculum, and to open pedagogy to geological, ecological and cosmological times? b) what happens

when pedagogical thought and practice come into contact with nuclear time? c) what might meditating on human mortality mean for engagement in pedagogical processes? d) what are pedagogical implications of the contemporary loss of diverse human cultures and languages?

The location of this inquiry has been autobiographically grounded in my own teaching practice as I moved across Canada, experiencing schools and pre-service teacher education programs in four different cities and in three provinces. Writing has been used as a method of ‘coming to know’ in this inquiry. It has been a qualitative, experiential and meditative process of studying, thinking, teaching and writing.

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1

Pretexts

a reflexive accounting – or, how I came to write this dissertation

This dissertation has emerged from diverse experiences and encounters, some purposefully structured for this inquiry and others more happenstance and appearing like talismans and gifts along the path. This work has been biographically shaped by my personal and historical place in time, by being a woman, a teacher, a child of immigrants from post-war Germany, by growing up in the Canadian prairies in rural spaces, and by living most of my adult life in urban western Canada. The time I have spent working as a teacher and a teacher educator, and being in schools with pre-service teachers in Calgary, Edmonton, Vancouver, Grande Prairie and Saint John has gifted me the opportunity to observe and learn from diverse pedagogical and institutional situations, and the time spent in conversation and learning with teachers in these places has compelled me to ask ever more urgent questions about the work of teaching in this time. These elementary school and post-secondary experiences took place in communities of radical cultural and linguistic diversity as well as extreme contrasts in economic privilege and disadvantage. These settings have challenged and shaped me and my perspectives not just as a teacher but as a human being. Thus, this writing inquiry is not only partly autobiographical but also deeply embedded in my subjective ethical commitments to and hopes for the present and future possibilities for the lives of children and teachers as they dwell together in the public institution called school. Because schools, teaching, learning (and living) are always historically situated in the world's present, the pressing questions and concerns that I have pursued in this inquiry have to do with some of the most urgent challenges facing the human community – *how can I be a teacher if the world (that sustains all relations) falls apart?*

The themes and methods taken up in this dissertation have another beginning as well, which may have prefigured this work more strongly than I previously realized. In the early years of elementary school I was what is now referred to as a 'struggling reader.' When 'reading' arrived to me it came suddenly and with great swiftness. Madeleine L'Engle's novels were among the first books I read independently, particularly *A Wrinkle in Time,* which over the years I read so many times that I have been through at least three tattered copies. Her books, full of complex characters and rich ideas from the sciences and mathematics, excited in me a passion for the intellectual life in ways I was not getting in school. I remember clearly thinking the first time I reached the end of *Wrinkle* that I wanted to be a writer and that I wanted someday to meet Madeleine L'Engle. In school I became a 'good writer' and I churned out many perfect formulaic essays absolutely to my teachers' specifications and praise. Then, one summer during my undergraduate years, I was granted my desire not only to meet Madeleine L'Engle but to take a writing class with her for several weeks. During this time she introduced us to many ideas about language and writing that I had never experienced before, among them: a) the ethical responsibility to the work of writing itself, b) the creative and difficult obligation to become a servant to the work and to the craft (not to a teacher, editor, publisher), and c) to learn to write with freedom and without strict method or structure, rather out of purpose and love for life and language itself.

Upon reflection, it seems to me now that reading (and writing with) Madeleine L'Engle might not only have sown the seed for the writing methodologies used in this dissertation but also for the theme of time which underlies much of this inquiry. It was in her novels, as a young child, that I was first introduced to the ideas of *chronos* and *kairos*. Writing from her Episcopalian position, L'Engle's framing of these was strongly theological although she did not write it in those terms. In her books, *kairos* is imagined as the time of love, of wonder, of open potential and futures and unwritten rhythms and possibilities not just for human life but for the earth and the universe. *Chronos* in her stories, on the other hand, the chronological time of the clock, is imagined as the time of time running out, of bondage and closure and exhaustion. In her writing *about writing*, Madeleine L'Engle (2001) calls *kairos* "real time" and "that time which breaks through *chronos* with a shock of joy" (p. 45). In this sense, *chronos* and *kairos* are not in opposition to one other, not a dualistic battle of 'good' and 'evil,' but rather *kairos* is an unselfconscious time and a deconstructive force at work where an artist is creating, a child is playing, or a person meditating

(L'Engle, 2001). L'Engle insists that this time be not only for children, artists and saints! It is *my* wish that it be also for teachers and academics.

In retrospective reflection I am aware of the ways I have taken up Madeleine L'Engle's challenge in *this* thinking and writing project, which has been in many ways an attempt to deconstruct the *chronos* time of schools by shaking it loose, by making spaces for other times to pour into the cracks and fissures. The time of love. The time of contemplation. The time of the universe. The time of life. My purpose has been to seek *kairos* in an institution guarded by the gods of *chronos*.

writing as inquiry: or, coming to know

The word 'method' derives from the Greek *méthodos* meaning the "pursuit of knowledge" (ODEE). Writing as a method of inquiry in this dissertation, as a way of coming to know, lives in the traditions of interpretive and narrative inquiries. It has been a qualitative, experiential and meditative process of studying, thinking, conversing, teaching, and writing. Madeleine L'Engle (2001) describes writing as a way of being attentive to a situation in the sense that something grabs at the writer and seizes the writer's attention, asking for a deeper look. She also describes writing as an ethical responsibility arriving with an existential burden that the writer does not always welcome: "My books wrote me," she reflects, "It's often a responsibility I don't want. But I don't know how to turn it down. I'm somehow not allowed to" (p. 67). I have found this to be true in writing this dissertation. Some of the topics, such as Chernobyl, seemed to arrive uninvited and *write me.* I did not know how to turn them down. David Jardine (cited in Rasberry, 2001) writes that "Interpretation seeks out its affinity to its 'topic.' One does not have 'interpretation' in hand as a method and then go out looking for a topic, scouring transcripts, for example, and 'doing' interpretation on them. Rather, something becomes a topic only when its interpretive potency strikes us" (p. 310). During the process of writing this dissertation, I was grabbed, seized, by the situation of the pedagogical world in relation the ethical meaning(s) of teaching in a time of great global despair, suffering, and ecological collapse – how to fully and humanly inhabit the institutional spaces of teaching and learning in timeful ways when these very spaces seem themselves to be drowning in floods of injustice, crumbling under the pressures of globalized capitalism and its focus always on the future?

And so, writing as inquiry is a place for thinking, for the emergence of insight to questions asked. Laurel Richardson (2001) who describes writing as a "method of discovery" (p. 35) writes that "its effects are surprisingly complex, rich, and rhyzomatic, having unexpected consequences for the writer and the reader" (p. 34). Richardson (2000) says that when writing is considered a method of inquiry, it is a way of "finding out" about a topic, a way of "knowing," and of "discovery and analysis" and not merely about "telling" (p. 923). L'Engle (2001) also describes the ways in which the writer sits down and intends to write is not usually what gets written. Ardra Cole and Gary Knowles (2001) similarly reflect: "When writing is inquiry and inquiry is writing we write *for* meaning rather than *to record* meaning" (p. 213). Meaning is made through the act of writing itself.

But such hermeneutic work of meaning making is not merely floating on the waves of life like flotsam on the tide, bobbing here and there, writing whatever comes to mind. It is inhabited by focus and purpose, driven by concern, commitment and engagement in ethical *questions* ('inquiry' means *to ask*), and a watchfulness – an expectantness perhaps – of *interpretive potencies*. Yet also it is not a kind of writing that seeks to solve a problem or to arrive at a solution or objectify life into an easily comprehensible or describable form, but rather a method of picking away at a concern, worrying around its edges, following through on thoughts, waiting for insight. It is ecological, emerging and living inside the life and relationships that already *are* and to write in such a way that these become shared. David Jardine (1992) explains:

> Hermeneutic inquiry has as its goal to educe understanding, to bring forth the presuppositions in which we already live. Its task, therefore, is not to methodically achieve a relationship to some matter and to secure understanding in such a method. Rather, its task is to recollect the contours and textures of the life we are already living, a life that is not secured by the methods we can wield to render such a life our object. (p. 116)

Such recollecting and interpretive work seems appropriate for teachers who are also 'researchers.' It is a way of meditating on the meaning of teaching from and while inside the ecologies of that process and space, grounded in the work itself, particularly in experiential and embodied knowledge. This matters particularly in that there often seems not enough time within the institutionally organized spaces of teaching for any reflection or 'coming to know' at all. David G. Smith (1991) describes how it is allowing the "hermeneutic imagination" to come alive, dwell in, and renew these organized spaces that enables a commitment to asking

> the question of how we can go on together in the midst of constraints and difficulties that constantly threaten to foreclose on the future. The aim of interpretation, it could be said, is not just another interpretation but human freedom, which finds its light, identity, and dignity in those few brief moments when one's lived burdens can be shown to have their source in too limited a view of things. (p.189)

The inquiry context of such work, slowing down, lingering, contemplating as focused practices allows for personal engagement in questions about why 'we' are in the state we're in and why it might be important to understand it. At the very least, it might improve the inquirer's own quality of life and mind, reminding teachers during days of busy distraction of the deeper and more meaningful commitments that might shape the classroom even in the face of time pressures and ecological erosions.

Ecopsychologist Andy Fisher (2002) insists, in the context of the ecological and psychological crisis that characterize the present age, that an academic case should be made "for privileging a 'not-so-normal' discourse" against the privileges given to economic and technological discourses. By this Fisher means the necessity to "wrestle with finding interpretive, experiential, or 'hermeneutic' forms of discourse which, being demanded by the subject matter itself, have their own validity and necessity" (p. 31). He suggests that this would begin by participating "more intimately or concretely in one's subject matter" (p. 36). For himself, to explain his own writing, Fisher says that he is guided by pain and sadness: "I am aiming, then, to adopt a genre of discourse based on the experience of loss" (p. 41) and that "To adopt a genre based on loss is to set a tone or mood that may disclose some of the painful reality lying behind the manic mask of modernity" (p. 42).

To experiment with forms of discourse that might interpret, illuminate and 'disclose' some of the 'painful realities' and suffering in teaching (and the world) has been my aim in this writing. As such, I have sought to write ecologically, to allow the world to come into the work, and to be open to the possibilities that unfolding historical circumstances would shift the fabric of my thought and thereby this writing even while I was working on it. There have been many surprises and much pain and sadness that could not have been anticipated. As a consequence, this dissertation does not follow the prototypical template and writing style of the social-scientific-based research thesis formulated as five distinct chapters. Instead, each chapter is a self-contained reflection on the various themes of the questions underlying the inquiry. These chapters and their purposes and origins are discussed in more depth in the introductory chapter that follows.

the problem of address

In one of his poems, Canadian poet Todd Bruce (in Budde, 2003) writes, "But then again, I have a problem with language. Still, I use it" (p. 95). From time to time in this dissertation I use the pronoun 'we,' even though at times *I* have a problem with it, and even with the awareness that this *we* is a contested and problematic word in the English language and particularly in academic writing. In her book *The Language War*, Robin Lakoff (2000) writes that in "an increasingly diverse society, as more and more of us expect to be active makers of the public discourse, there necessarily arises a nervousness about who 'we' are, whether there even is a 'we,' and if so, how it is created" (p. 32). Unfortunately, in English, there is not (yet) a neutral pronoun and so the 'we' summons up all the difficulties and complexities of identity, of address, of who the speaker and listener are, and of the moral efficacy of any one person speaking on behalf of any others (or even, perhaps, on behalf of oneself).

One of my rhetorical purposes in this writing has been to draw readers into a consideration of some profound questions that include not just pedagogy but the fuller life on this planet. From this perspective, there is another 'we' besides the royal or colonizing we, and that is the 'we' who share this planet, the *human species* as one of the members of the planetary community. Therefore, when I use this 'we' it is out of the assumption that what 'we' share in common might be greater than what separates us. If such a use of 'we' is possible then, it is not a dualistic 'we' but rather a relational, intimate and vulnerable 'we' that never implies a 'them.' Nor is it a 'we' that submerges all difference under a blanket of sameness, but a diverse 'we' that is nevertheless materially and temporally linked *together* in the community of life. It is an invitation to a shared communal space, to a common life on earth, in time. Hermeneutic language is always about 'us,' since language and dialogue exist always and only in community. This is akin to what Catherine Keller (1986) names "the hermeneutics of connection" (p. 218). She writes that "the image of the web claims the status of an all-embracing image, a metaphor of metaphors, not out of any imperialism, but because, as a metaphor of interconnection itself, the web can link lightly in its nodes an open multiplicity of images" (ibid.). In this hermeneutics of connection, in the all-embracing image that is life, is not the 'we' of imperialism, but the 'us' that includes all interconnected networks of life on earth. Together, but not all the same. Infinitely connected and yet diverse. Opening onto many stories and possibilities. Under these terms, it might be dangerous to speak only as 'I,' considering that it is the "separative world view," the one that envisions each person as an autonomous individual, that "breaks the web" (ibid.). In a conversation with my friend, she points out her sense that academic writing is essentially narcissistic, breaking the web, rebelling against the understanding that 'we' humans inhabit the planet as a species, collectively. Yes. So, even if I have a problem with language, still I have used it.

on freeing time: from *chronos* to *kairos*

A definition of time is not attempted in this dissertation. With Augustine I might say, "What, then, is time? If no one asks me, I know: if I wish to explain it to one that asketh, I know not" (p. 3, cited in Gale, 1968). To think about time is an ontological project in human meaning making. There are likely as many ideas and conceptions of what time is as humans who have been alive on this planet and pondered the mystery and meaning of their own existence and life cycle. While the theme of time is one thread that weaves this inquiry together, it has not been my purpose to discuss or excavate the vast histories of time in human meaning or consciousness. This dissertation does not include a survey of the philosophy, religion or science of time (east or west), nor does it trace the lineage of "the problem of time" (Gale, 1968, p. vii) in western philosophy although that may have added another line of depth and interesting questions to this text. Rather, my purpose has been to meditate on the condition and meaning of human life, in particular in schools, when one form of time almost completely dominates the institutional structures. Economic, measured, linear, chronological time inherited from the Judeo-Christian heritage and which places all expectations on the future is the *temporal condition* under which I labour as a teacher, and therefore the physical, mental and spiritual condition out of which this inquiry has emerged.

In his little book *Time and the Art of Living* written during a sabbatical from teaching, Robert Grudin (1982) laments about the effects that chronological time has on his own life: "Indeed, had some tyrannical god contrived to enslave our minds to time, to make it all but impossible for us to escape subjection to sodden routines and unpleasant surprises, he could hardly have done better than handing down our present system" (p. 149). Being in bondage to this time in schools is precisely what allows life there to be experienced and reproduced as hierarchic, linear, fragmented and disconnected.

I believe this question(s) of time matters for teaching and for the practices of education because *human understandings of time* are always cultural, and/or religious, and/or historical constructions. If classrooms are a significant cultural space where consciousness is conditioned to see the world in certain ways, then what does it mean for children to be conditioned into one culturally specific experience and form of time, propagated and mechanized by modernity, rooted in that Judeo-Christian timeline, and accelerated into globalized capitalism? Are children being conditioned into a future of the perpetuation and reproduction of patterns of living and forms of interaction with all their relations in their environments? How will *life* survive this?

How is teaching implicated in this process as the classroom is a real environment and a real ecosystem already, bound in ecological dependency with the rest of life through time? Thus, an ethical question which has arisen again and again for me is how can all this rushing, this rushing that causes so much suffering, be stopped?

But another interpretation is always possible and this time can be deconstructed both hermeneutically with language, and also consciously in pedagogical practices and lived relationships. Thus, my pedagogical concern herein has been with inquiry into the experience and meaning of being *in* an institution's time. While western philosophy has tended to describe 'time' as a 'problem,' I have not begun with this premise in this writing. Rather, while living under one form or construction of time 'constraint' may be a problem, *time* itself is not, and indeed to consider other forms of time experience might provide creative, opening and deconstructive impulses to the work of teaching and living. It has been my purpose through this writing to explore what it might mean to intervene and interrupt that chronological sense of timing, particularly through the consideration and attentiveness to phenomenological and embodied experiences of time, and helped along by some interventions and insights from earth and biological sciences such as paleontology, ecology and geology. On the topic of the phenomenological experience of time, Sandra Rosenthal (2000) writes that "The being of humans in the natural universe and the knowing by humans of the natural universe are inseparably connected within the temporal structure at the heart of experience" (p. 152). I begin with the assumption that human beings, *as nature*, in being composed of the stuff of the universe, inhabit and exist first of all in the time of the cosmos and in the ecology of shared relations that comprise life, not in a time that is fragmented, atomized, planned or calculated. To begin with such a construction of time does not, as David Loy (2002) explains in his challenge to Heidegger, objectify time. It does not separate humans from the rest of life creating an unbridgeable dualism. He writes that a Buddhist solution "eliminates this dualism by realizing that I am not *in* time because I *am* time; and if I am time I cannot be trapped by time. To *be* time is to be *free from* time" (p. 251).

Through invoking such a deconstructive process, I do not seek nor hope for any convergence of or final explanation or experience of time, but rather for a multiplicity of experiences and articulations and a *freeing* from time. Feminist philosopher Elizabeth Grosz (2005) argues that a useful philosophy of time is ontological and ethical in that it aims – in relation to other projects such as feminism, anti-racism, queer theory – to address injustice in human relations. To find a way that *chronos* might be deconstructed by *kairos*, breaking through all the stress and shallowness with a shock of joy in the hermeneutic recollection that we are always in relational and ecological time: this desire has motivated this writing project.

1
Prologue

Bearing witness to both the beauty and the pain of our world is a task I want to be part of. As a writer, this is my work. By bearing witness, the story that is told can provide a healing ground. Through the art of language, the art of story, alchemy can occur.

—Terry Tempest Williams
(2002, p. 321)

one: *the small wood*

The path is becoming overgrown with grasses and small bushes. Flat, grey, slate stepping stones lead through the young poplar trees with their crinkly white bark and filtering green leaves, past wild rose bushes wafting sweet scents in the summer, in the fall heavy laden with rosehips. Clematis climbs some of the trees and the chain link fence: purple flowers in summer, fluffy seed heads in fall. Smooth logs on the ground invite sitting down. Stop. Stay awhile. Rest. The trees make shade and air for those who visit and those who dwell here; for insects, birds, mice, and for those who find home beneath the damp soil. In the winter, snow covers the stepping stones and the rose bushes hang heavy with frost.

I remember this spot before the wood was here, passing by on walks to the public library. Once upon a time, it was a small dry hill of dead grass and weeds hidden at the windowless brick back of an elementary school, against a dusty graveled alley and a parking lot for teachers' cars. But then someone took care of this place. Someone planted trees and bushes and flowers. Built benches and planters. Hung bird houses. Tended it. Replanted it again when it was vandalized by knives and fire. And now, thirteen years later here is this small, splendid and even a little bit wild wood.

From the front of the school, the small wood is invisible to passers by and everything appears as usual. A large, rectangular two-story brick building set against the street. Not many windows. And a big lawn surrounded by a tall chain-link fence with few openings to go in or out, soccer goalposts at each end, and signs that announce 'No Dogs.' During the summer break, yellow warning signs are attached to the fence detailing the herbicides sprayed on the field. During the school months many hundreds of children stand around on the big lawn at recess. Some play soccer, but most just huddle in little groups here and there. There is a small playground structure with two tire swings and a slide, and a few children play there supervised by teachers. It seems crowded. Once, while passing, I ask some of them through the fence if they ever play in the wood, and they said, "We're not allowed there at recess." Two friends, who don't know one another, tell me on separate occasions that when they pass this school it makes them cry.

I know why the children are not allowed in the wood at recess. There are too many of them. This lovely place that feels quite large enough when wandering alone in the shade along the stepping stone path is not large enough to enfold hundreds of children at once. It is a small and intimate space, about the size of an urban backyard, tender and full of the soft breath of trees and the buzzing of insects. It *feels* like something to love. I *want* the children to be able to come here. I *want* them to be able to escape from the crowdedness of the big lawn. I *want* the wood to expand in depth and breadth to make room for the trees to reach roots down and leaves skyward. I *want* there to be more *ground*.

This small wood whispers a challenge in these contemporary times of crowded and crumbling schools, in a crowded and crumbling world. It whispers quiet possibilities from behind that stiff brick building. It is *possible* to create forests in school yards, to create life where there once seemed to be none. Something is growing there. Making space, making air, making homes for other creatures who cannot live and thrive any more than children, teachers and dogs can on the big lawns. The ones who created this special place at the back of an ordinary public school had an extraordinary vision. In their own time, place and togetherness they had the *present*ness to create something beautiful, a gift to the world in an act of long-reaching love and commitment to the future.

two: *this journey—unfolding the time of teaching*

There have been many changes in the landscape of teaching and learning in the nearly two decades since I began my own teaching career. Because schools are embedded as institutions within larger cultural, political and economic landscapes, many of these changes directly mirror political and historical unfoldings outside the school, in the world. In particular, what I first experienced nearly two decades ago as a kind of openness and creative possibility in the work of teaching, a sense of freedom and organic democracy, of excitement and movement, amongst teachers as learners themselves at local sites (at least the school district where I worked) especially in the area of language learning (arts), has been replaced by an overt and external political control and interference characterized by constant surveillance of teachers' work and children's learning. Actions such as achievement testing and the labeling/coding of individual children with many different learning, social or behaviour 'deficits' that require remediation were not part of this work when I began teaching. This 'work' seems now consumed with literal mountains of paperwork, reporting, and tracking children, tasks that are so counter-intuitive to the creative and relational nature of teaching that it leaves little time for thought, or creativity, or planning more openly for children's learning. The consumption and materialism outside the school have infected the inside of the school as we are told that if we just had enough money to buy the proper programs that every child could read, be at grade level, or speak English perfectly. Beneath this lurks a veiled threat of the economic consequences and meanings of the 'failure' to achieve these things. Most often, these promises entail both a threat and a seduction, and involve complicated and expensive computer technologies which also did not exist when I began teaching. This alone, I believe, reflects the magnitude of the change inside school buildings. I do not know if teaching has become more complex, but without doubt, it has become more *busy* and filled with complicated distractions that seem unrelated to relationships with children's learning and growing in the community of life. It feels as though I am always 'behind,' that time itself is being consumed, that our lives are being consumed, and that teachers are laboured to exhaustion under the promises (or fears) of a 'better future.'

The question of the *time of teaching* is one of the interwoven threads that winds through this dissertation. I have worked to deconstruct and interpret the literally overwhelming focus on the (a certain) future in the work of teaching and learning in schools. The location of this work has always been local, grounded in my own singular teaching practice and locations as I moved across Canada, experiencing schools and teacher education programs in four different cities in three provinces. I have endeavored to learn and practice a meditative process in my studying, writing and teaching, and to learn to listen to the world, cutting through the noise of all this clamour about the economy, competition, and surviving. Schools, teaching and learning are infinitely complex and diverse situations, and this dissertation is not about all schools and teachers everywhere in all time. Parts of this work are, as such, autobiographical, stories of experiences and encounters through pedagogical times, spaces, and relationships.

In listening to the world, in relation to the work of teaching, I have tried to be attentive to possible futures on this planet not just for human life but for *all* life. Now that the myriad and diverse ecological threats to life have been popularly bracketed in these past several years as 'climate change' or 'global warming,' the threat is articulated in the media, and indeed the school staffroom, multiple times per day making it feel an almost-larger-than-life emergency. Indeed, the psychiatrist R.D. Lang (in Fisher, 2002) said that humanity is suffering from the psychological and spiritual effects of a "chronic low grade emergency" (p. 74). This is not so 'new,' and I am aware personally of never having lived in a time when these concerns did not exist for the human community, but the awareness of ourselves as a species embedded in an earthly ecological community bound by gravity, mortality and shared ecosystems is perhaps now increasing. These also are not 'new' questions for education and I have not intended to address them as new here.

The question that has concerned me, in my own practice and teaching locations, is how might this 'emergency' be interpreted in the context of the day-to-day work of teaching, in Western public schools whose overt contemporary goals of measurement and competing individuals being prepared for work in the future seem antithetical to any process of living well or sustainably on the planet, in relation with the Others – the other humans who suffer, who are excluded, and who disappear even as this day goes on, and the other species who disappear as their habitats are increasingly strained and crowded. Enrique Dussel (1999) named this "the terminal crisis of the civilizing process" through "the ecological destruction of the planet and the extinguishing in misery and hunger of the great majority of humanity" (p. 20).

To explore the relationships and tensions between schools increasingly defined around the future, competition, and preparing for work, and the rapid deterioration of livable life spaces on the planet has been very difficult. There are many distractions working against engagement in this type of work, not the least of which is the interminable busyness of trying to survive in this situation. Thinking about these questions can be traumatic and confusing, and leaves not profound and certain answers but a great uncertainty about the paths ahead and also about what to do *today*. These pressures in the life of teaching are *real* and immediate: mighty distractions. And yet, there is that beautiful and hopeful small wood, at the back of a school, down the street from my home.

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This writing project begins with the thought that all this chatter and focus on the future, particularly around education being described as preparing for work (in and for the global economy) rather than as a part of democracy, with its related push towards increased standardization and accountability paralleling efficient business models of production and productivity, is a linguistic and intellectual move that separates education from 'the world.' It is tied primarily and reductionisticly to capitalist relations rather than to the quality of the life of the mind, or thought, of ways of being together, which is also the 'work' of being human in time, place, as neighbours, as part of the life process of the universe. As such, it is an impoverished vision of human life and children's lives in particular, wiping out the real *time* of children's living as all focus points towards a future which is not yet here but imagined as already real and present. What is abjected by this vision? Life itself? All the bodies being ground under by all the 'working'? The nearly invisible extinction of human cultures, species of other animals and plants?

The ecologist Paul Shepard (1998) wrote that "the last benefits of the raiding of the earth by the affluent minority still give us an illusion of well-being in the midst of worldwide calamity" (p. 169). This thought was the most difficult part of this dissertation and is perhaps among the most difficult questions for education in the

'West' as it is at the centre of great entanglements of consuming and producing and enjoying great privilege, and entangled also in historical and contemporary patterns of colonization and abuse of the life-spaces of others, and schools are part of the institutional reproduction of this life and life *style*. As one of the individuals inhabiting this space, I have struggled continuously in my own life to reconcile my own relative affluence and luxury with the historical unfolding of planetary collapse, and in my work as a teacher with what it means to participate in its reproduction in both conscious and unconscious ways each day. Although it does not stop me from trying, I do not know how to change my own life, or to live differently in any way that seems to make any material difference to the world's future. And yet, I have some sense that it might, in *unmeasurable*, *unknowable* and ethical ways, matter what I do today in this creative and pedagogical work with children in school.

In answer to the question '*what is the future?*' Catherine Keller (1986) writes:

> The future? It is already there, *as* future, that is, not as predetermined, but as probability or possibility. The present pregnant with the future does not know that future as any fait accompli; it does not foreclose, does not control, does not subscribe to the ontology of insurance policies. Yet this future is neither a gaping abyss, God … or The End. We can feel the future forming in ourselves now, for this my present self will be endlessly taken up and reiterated. The future will – if only to the most trivial degree – feel this present. My soul, my body, my world: ongoing, they will have to take me in. So if I learn to feel the subtle movement from past to present, I may begin to discern the transformation of vast relational patterns, personal and social, as they roll through my present. But we cannot – and neither can any God or Goddess – foreknow or control the future. It is by definition not yet. (pp. 246-247)

It is into this ethical space, this future as *probability or possibility*, that I have focused this dissertation. If the future is forming in ourselves now, already taking us in, the future is already here and present, in day-to-day decisions, actions and relationships. If this is the case, then the work of teaching may be one of the most urgent kinds of work in the world, both philosophically and practically. This might mean that the implications and consequences of the loss of teachers' autonomy and ethical spaces to make decisions organically in local teaching communities and in our own classrooms are very dire. In this sense then, this writing is a lament, not for the past, but for the present and the future. A lament for my profession's relative silence in the face of great suffering, in the face of fear and discouragement, and for our own suffering under these forces which might ask us to do things to children (with children, for children) that we/they experience as violence.

What is this profession left with, if rendered voiceless and powerless to speak about what is happening in the world? If teachers are only obedient servants to fickle political machines occupied with their own self-interest? If only training bodies (with numbers!) to be workers, for life in the global labour market, rendering this work not only violent but glib, dilute, and meaningless? And yet, in the classroom, in teaching communities, and in individual lives there are opposing and deconstructive forces always at work. This writing unfolds in that tension between the small wood and the big lawn; in these narrowing, controlling spaces and teaching with the heart, out of those poetic and spirit-filled places, which are capable of taking in the world, in bearing witness with language and love to the stories of children in classrooms and the many places from where they have arrived, to what is happening locally and globally to other citizens and other species. As teachers we literally are *in the world* through the intersection of students' lives and histories, and in those interstitial spaces lie the possibilities for work that is complex and deconstructing, possibilities for work that is the 'not yet' future unfolding.

I seek throughout this writing and thinking to place the work of teaching in the *time of living,* to ground it in the thought that what affects the lives of children and teachers affects the life and future of the planet. It is an attempt to stay near to the urgencies of the present, a response to the already very difficult work of life in this singular day, of negotiating relationships, in recognition that this work of teaching is already difficult and urgent enough without recourse to more programs and more busyness and more grand recommendations for what could be done for the future or to bring salvation to life on earth. It, most of all, endeavours to place the time of teaching in the intimate time of creaturely frailty and mortality, that fleeting and precious time of all life. It is a contemplation about how the work of teaching might deliberately, and in this real present, inhabit temporalities and sensibilities other than the time of the economy, the linear factory time of the clock and market, but rather the time of life itself, of wheeling galaxies, rock cycles, river flows, insects lives, or an individual human life.

three: *struggling for presentness*

The body of this dissertation has lived in many geographical locations over the past eight years. It moved apartments several times in Edmonton. It rode thousands of kilometres across Canada in cardboard boxes and computer hard-drives and in *my* body/mind from Alberta to New Brunswick and back to Alberta again a year later. From all this re(dis)location, I have learned that location *matters* for writing and that meaning created in one place may be disoriented in a new home, that it might require new interpretations and readings to belong properly to a new place. To arrive in Saint John and find that I could not 'read' my own words that had been written in Edmonton and make any sense of them in this new environment and work was both unanticipated and confusing.

Topics and themes that I had written about in Edmonton *as theory and future possibility* were not only *not* theory, but real and already possible in Saint John, a place where sometimes life itself seemed to be collapsing and disintegrating under the economic and industrial weight of the city's labour, and where local 'schooling' was forced to bear an unbearable burden of hope, of saving this place from itself 'if only': if only the literacy rate was higher, if only people were more flexible workers, if only the young people would not move away. *If only.* Trying to think about 'education' in and against the context of the paralyzing fear provoked by the educational discourses of 'behindness,' pushing for competition, standards, and increased literacy levels was nearly spiritually and intellectually debilitating. It felt like there was no liberation or freedom coming. The present place and time seemed to be literally running out of energy, consumed by goals of future prosperity and future labour markets, driven by visions based in very real fear and anxiety, with all hope for life placed in the future and on children. And then, in moving 'back' to the West, to Calgary, where I began teaching young children again, I realized just how deeply the discourses of power, control, and narrow measurable expectations of success had also become the main map and purpose in a place where I had previously experienced the organic openness and possibilities of teaching work. It felt like coming to a foreign world. Each of these geographies and experiences has had an influence on this project, and it has taken time to find the words to speak of and integrate them into a coherent whole.

But this dissertation has not only experienced place, it has also lived through *time*. It has lived in the time of "September 11th" and witnessed the violent responses that have followed in what seems an ever increasing imperial and economic aggression in the name of freedom and democracy, and through the destruction of terrestrial living spaces near and far for all kinds of life in the name of keeping the markets of the world growing, producing, consuming. One day, I was sitting outside talking with my neighbour, an unemployed scientist from Iraq. He was describing the strange illnesses and afflictions his children were suffering since arriving in Canada. He suddenly started to weep and waved his hand across the horizon, past the oil refinery, the pulp mill, the ships, toward the cold grey Atlantic ocean, and he asked, "*When* will we understand that what is killing the salmon is killing the people?"

What it might mean to *understand* this question in the enaction of my work as a teacher has been among the questions that occupied my thinking long before beginning a PhD. It often feels as though there is a great chasm between the natural world (what other world is there?) and the time and place of schools, even as they are positioned in that world. To think together the *time* of schools, the *time* of teaching, the *time* of children's lives, and the *time* of the world is a project that could never be complete, a project of motion and openness towards each day, a project of closing some of the profound disconnections of modern Western individualistic life which also inflict (affect) the world of teaching in countless and unmeasurable ways.

This dissertation, then, has been an attempt to cultivate my own presentness to the world, to studying, to listening, to watching. Despite the many distractions. I have learned that it is perhaps not so much about attempting to be always present, but also about learning to pay attention to the rough ground, to the disruptions and interruptions that burst forth. To the deconstructive motion of life itself that is not controlled by human desires and motives. Like the small wood. Like surprising and sudden words uttered by a child who is inspired by life to new thought. Like the arrival of a refugee family at our school. Like the death of someone loved. Like a beautiful story or work of art that offers a new or different interpretation of something that seemed banal or routine or 'normal.' It has been these disruptions that have provided that ground for this dissertation and I have been grateful for their usually unanticipated appearance.

Living now, rooted in *present*ness, as intentional focus and meditation in an attempt to cut through the surfaces and listen to the world is difficult, since it might involve finding enough silence to learn to stay 'in place' and 'in time' and not in future projections and fantasies about a different or better life. Attempting to find *any* silence or space to write and think has been a challenge in this fast-moving, pressured time. To find, in those rare sublime moments of quietness, language for the beauties of walks along the North Saskatchewan River in Edmonton, or to look for perfectly round and smooth rocks on Atlantic beaches has taught me one way of resisting the powers, processes and agendas that erode the human spirit. In this, also, I see the promise of that small wood behind that elementary school. Poet Don Domanski (2002) writes,

> But one thing that a political agenda doesn't have is silence and at poetry's centre there's the silence of a world turning. This is also found at the centre of a stone or at the axis of a tree. To my way of thinking, that silence is the main importance. Out of it come the manifestations, all the beings we call words. (p. 245)

Don Domanski suggests that the insights and language that arises from silence are also part of listening. He insists that it is time for humans to learn to listen to the voices of others, including the non-human world: "a deer for instance, or the presence of a cloud. That presence is also a voice to listen to, to be influenced by. That cloud can help you fall into language" (p. 249).

The institutionalized academic world has not been particularly skilled at this kind of listening. It is, in my own experience, not often or openly encouraged, taught or practiced. Examples of this work, of the kinds of thought and writing that might come of it are more accessible in the work of poets and novelists than from researchers and professors and peer-reviewed journals. One reason for this might be that in a place where objectivity, rationality, professionalism and fragmentation of knowledge into disciplines are praised and valued, the subjectivity, irrationality, and sublime working of the heart that come with *listening* to suffering and pain are both disturbing and terrifying. *Falling into language* is not necessarily a pleasant or predictable experience and does not guarantee success or tenure. Who knows what will happen? It may, in particular, invoke pain, discomfort and existential confusion about the purpose of life, about the purpose of one's own life, and about the workings of these institutions. But perhaps there is yet time to learn this listening, to unlearn other habits, to change hearts and minds, to allow for the entrance of mystery and poetry. Ben Okri (1997) writes that,

> It is time to listen to the speech of poisoned dolphins, the cries of the stratosphere, the howls of the deforested earth, the caterwauling of the dry winds over the encroaching deserts, the screams of people without hope and without food, to the silences of strangled nations, to the passionate dreams of difficult artists, and to the age-old warnings that have always lurked in the oral fables of storytellers and shamans. (pp. 131-132)

This is the language and listening that live in the shadows of academic institutions, including schools. Ben Okri's exhortation to pay attention to suffering is not to be interpreted as a call to despair or hopelessness, but rather as a call to a deeper and more connected ways of living, a more urgent call for living – and education – to be sacred and meaningful. Not work in the service of wealth, progress or growth, or propelled by the fear of not competing or winning, but work on the creative horizon of the sublime, of all the possible 'not yets' of the future, that is, work in the service of life, of time, of breath, of water, of being together. Might this work begin in *unknowing*, in that place where there is yet room for depth, beauty and mystery? Ken Wilber (1995) reflects,

> It is often said that in today's modern and postmodern world, the forces of darkness are upon us. But I think not; in the Dark and the Deep there are truths that can always heal. It is not the forces of

> darkness but of shallowness that everywhere threaten the true, and the good, and the beautiful, and that ironically announce themselves as deep and profound. It is an exuberant and fearless shallowness that everywhere is the modern danger, the modern threat, and that everywhere nonetheless calls to us as saviour.
>
> We may have lost the Light and the Height; but more frighteningly, we have lost the Mystery and the Deep, the Emptiness and the Abyss, and lost it in a world dedicated to surfaces and shadows, exteriors and shells, whose prophets lovingly extort us to dive into the shallow end of the pool head first. (p. xi)

As I wrote the chapters that follow, I began to realize that it was in paying attention to the dark and the deep that the most urgent questions emerged, but also more importantly that it was in contemplating them that I sensed my own teaching practice becoming more heart-filled and generous, more quiet and also paradoxically more spontaneous. I felt more free, more able to say *yes* to children's desires, and to face the deep griefs that always arrive with such relational work. I realized over and over that those distractions and pressures that feel so overwhelming and controlling are in fact only surfaces, shadows and shells and that is what makes them so dangerous if they are mistaken – like Coca Cola – for the 'real thing.' And I realized that obsessions with 'real things' like competing, achievement exams, or the literacy crisis are in fact specters that erase one's ability to focus on, for example, ecological threats to life, the meaning of the many human conflicts unfolding around the globe, and the human obligation to future generations of all life on the planet. Indeed, diving into *that* shallow end just might leave *everything important* 'behind.'

on teaching, writing, and ecological trauma

> Those who invade what they believe they have discovered enter from the raw outside of the given space; they do not know themselves as beings grown in delicate reciprocity with the relations constituting a place. (Keller, 1996, p. 141)

In consciously seeking to deconstruct and escape the shallowness, the hierarchies, the separations, disconnections and fragmentations that have characterized teaching in this time, the thought and work of Catherine Keller, Andy Fisher, and Paul Shepard, among others, have been especially influential. Svetlana

Alexievich's sublimely beautiful and heart-shattering work on listening to voices from Chernobyl inspired me in difficult times to believe that the work of remembering and recording what is going on in the world does matter. The work of Emil Fackenheim, Jewish philosopher and Holocaust survivor, although not appearing in the citations in this text, has profoundly influenced my approach towards my work and writing. From studying his texts, I learned ways of writing and expressing thought and questions that were more lingering and patient, less in a hurry to conclude, and more willing to circle around very difficult and unanswerable questions, considering possibilities without hastening any arrival in any particular place or ultimate conclusion about what 'we' *must* 'do.'

In resuming the work of elementary school teaching while in the midst of studying and writing, *this* dissertation took on new urgencies and dimensions. Insofar as what had seemed theoretical was suddenly real and present, this writing took on the urgency of writing against despair, both my own and that sensed in others around me. It became a conscious and living attempt to formulate a pedagogical response to the contemporary time of teaching, impoverished as it is by many kinds of controlling and reductionistic thinking particularly around 'preparing' children for the future. I do not have confidence that working under this view will bring about any goodness or justice (social *or* ecological) to the present, never mind the future. To be honest about the material conditions of teaching and living in the 21st century means contemplating ethical questions as a guide to decisions and practice: What is good, right, and just for this child now? What are pedagogical responses when production and markets are valued over the life-processes of the planet, words like 'quality' and 'accountability' flattening and traumatizing everything in their path, silencing the voices of the creative, the marginalized, the earth and its creatures? Is it at all possible, in this time, that a classroom can be a site of non-violence and habitability?

If we are coming to the end of the "industrial era illusion" (Berg, 2002, p. 204), that is, if the illusion of not being related to natural systems is reaching its limits, how might schools, which as institutions are so "grimly locked in step with 'progress'" (Livingstone, 2002, p. 53), participate in alternative relationships in the world? One way might be to open to the trauma of the moment, to the fear in the face of ecological catastrophe, of shrinking spaces for life and the violences arising from that in the human quest for more space and more energy, in relation to the work of teaching and learning. Many children – *increasing* numbers – have arrived at my school(s) traumatized by wars and ecological stresses, quickly losing their connections to their homes and places of mother-tongue birthly connectedness. To open to their experience, to find ways to slow down and listen and grieve, rather than rushing into the narrow space of competing and labeling deficits, might initiate one possible deconstruction of the institution from within. Attending to the real and material human needs and rights of children *in time* might be a resistance, a counter-strategy to open into slower time, into more beauty, difference, and diversity, which are the true strength and resiliency of any ecological community, and into earth time and cosmic time. Any possible undoing of the colonial legacies that are continued through global markets and through children's education might begin with such a deconstructive and contemplative strategy. *If* it is possible to resist the institutionalized pressures and externally imposed political structures. As a practicing teacher within this institution I am unsure whether this *is* possible, and this is an idea and reality that I have struggled with during this writing and have explored herein using autobiographical experiences and stories.

The notion that ecological trauma is related to human psychological trauma has been important to this work. There are, lately, often reports in the media about 'crumbling schools': roofs are leaking, windows are broken, walls are cracked, and mould is growing. When standing in the school yards where I have been teaching, I can see the massive towers of the oil companies in downtown Calgary and the swinging cranes building ever more and more. These oil companies have so much influence and power to dictate in this place what education will be. These towers do not appear to be crumbling, and I was at times overwhelmed by anger and sorrow while looking at them as children in my class cried with literal hunger or shook with cold in their thin jackets in the winter or told me that their parents cried all day because they did not know whether their relations in their war-ravaged home countries were alive or dead. But these towers, too, will eventually crumble because there is nothing *real* propping them up. And outside the walls of schools, ecosystems are 'crumbling,' as are the perceived securities and truths of 'western' life. In 1998, three years before the terrorist attack in the United States that so shaped global geopolitics and economics in the first decade of the 21st century, including the arrival of these children into our classroom community, Ben Okri wrote that "the centuries have indeed been brutal. All the great systems have failed, or are failing" (p. 29). And even prophetically perhaps, he commented that, "if the towers of certainty collapse one after another on the great landscape of History and Time, then this represents somewhat wonderfully the triumph of Time over the insane arrogance of human certainties" (p. 30). If schools as institutions are crunching up against these limits and collapses in various psychological and material ways, are they even an institution that can survive and be ecologically feasible and sustainable in such a world? As edifices to the industrial and colonial legacies, is it possible within these walls to imagine the humilities and actions necessary for life to continue in any kind of ecological thriving way, including the human species? This has been a terrifying question to ask while engaged in work in these very institutions, both as a teacher of young children and as a graduate student on the path to academia.

Many scholars in the areas of psychology, spirituality, and ecology are studying, writing, and theorizing about the effects of ecological stress and crisis – the contemporary urgencies of the global situation masked by talk of fear and terror – on human individuals and communities, and are describing this as a form of chronic trauma. Psychotherapist Miriam Greenspan (2003) makes a case for the necessary work of individuals and communities to work intentionally through grief and despair as it relates to the unfolding of global events and the current situations. She argues that "Living in an endangered world ecology affects and alters human psychology" (p. 247), and yet, as she says, there is no diagnosis in the DSM for defining the kinds of sufferings arising from all this: our fears, disassociations, woundedness, anxiety and panic, sleeplessness. "Each time we get rid of one species," writes Buddhist scholar John Daido Loori (1997), "we create an incomprehensible impact and traumatize the whole environment" (p. 181). And Catherine Keller (1996), feminist theologian writes,

> I imagine the present, collective momentum of the developed world, bloated with the effulgences of technological progress, has brought this edginess to a pitch of terror. Many of us most of the time have the luxury of numbing our fears into free-floating stress. But even when we attend to its realities, we cannot get our minds around the total present threat to livable life on this planet. (p. 90)

Charlene Spretnak (2002), who works at the intersection of postmodern feminism, spirituality and ecophilosophy, articulates the ways humans living in the west are traumatized, especially by the dream of the autonomous subject which creates a form of living in what she names a "profoundly alienating state," detached from the "grand communion" (p. 47) of life. Her hope is for an ecological postmodernism, a path "beyond the mechanistic, dualistic, anti-nature, anti-spiritual orientation of modernity." And she reflects that "such an orientation would emerge from the sense that our social construction is grounded in the fact that we are embodied organisms embedded in subtle processes of nature" (ibid.). Ecologist and environmental philosopher Paul Shepard (1998), in his final book, struggled to articulate the fear and grief he sensed in the human community in the face of ecological stress, naming it a "quiet desperation" (p. 14), a profound and deep kind of suffering. "This desperation arises not only from lack of attachment to place but also from lack of kinship with the larger community of all life on earth" (ibid.). Eric Zencey (1996) writes about what he calls the "ethos of rootlessness" that pervades educational institutions (p. 15). He speaks primarily of higher education at universities, but it seems also true of schools. He conducted a project where he asked highly educated and environmentally concerned people on his campus to describe the local watershed, where their tap water comes from and what happens to it after they use it. Very few people could answer this ecological question. The life of the mind is disconnected from the life of the body and the life of the planet which is the *only* ground and source of human health and survival. I have struggled in this work with the seeming *sameness* of schools and universities everywhere, at least on the surface, as if location has nothing to do with their existence. How to become more rooted in the ecologies of life seems an important question for the future of education.

In this dissertation, I take up ideas of human rootedness in relation to the work of teaching, to children's lives, and to *time* – to the finite limits of the world and our own lives. To teach in a time of trauma… there is no handbook for this, no curriculum that addresses it or charts with a path to follow. It seemed important to meditate on and begin to work through pedagogical aspects of eco-psychological trauma in relation to possible earthly futures including catastrophic nuclear futures in a time when the focus of education, politics and economics are driven by a vision of impossible progress and growth and represent a kind of extreme psychological denial of the planetary and human condition.

"To choose life means to build a life-sustaining society," write Joanna Macy and Molly Young Brown (1998, p. 16). What would it look like to build a life-sustaining pedagogy in schools, governed as they are by imposed curricula, programs, goals and tests? Would choosing to build a life-sustaining place possibly mean an active refusal of the non-negotiable demands of this profession, meaning it is no longer possible to work in this institution? I worried away at this during this writing, and in my own teaching practice from day to day. These are difficult questions and ultimately unanswerable except through time, praxis, and in community taking them up together. Catherine Keller (2000) frames this kind of work as spiritual work, saying that practicing social and ecological responsibility will not suffice, but rather that we should "seek theologically to re-embed the human within the planetary society of mostly non-human life, as a sustainable, civil, and humane economy *within* nature – as part of the interdependent *oikonomia,* the economic-ecological household, of our planet's life" (p. 80).

The shadow side of trauma is denial. In North American society it might be called 'shopping.' Jonathon Bordo (1992) has theorized that the ecological threats facing humanity (and other species) are so serious an attack on the conditions and relations that support existence that "thresholds have been crossed" and that this is an "epochal change" (p. 173). He contends that western academic theory has had much to say about "world-destroying historical events such as Auschwitz and the Gulag, just as it now has thematized AIDS, while being virtually speechless concerning the Aral Sea, Gulf oil fires and global warming" and he asks if it might be the "muteness of nature in the face of ecological catastrophe that provides the source of the postmodern sublime?" (ibid.). Bordo speculates that "the very idea of an ecological threat under conditions of modern technology exacerbates all our existing notions of the sublime to the point of creating techno-administrative practices of denial" (pp. 173-174). He believes that human technologies have become incommensurable with our ability to comprehend them, nuclear technologies being a strong example of this. In working on this dissertation, I experienced this denial, silence, and incommensurability many times, but especially while trying to 'face' the accident at Chernobyl as both a teacher and a human being. At times, I was overwhelmed with revulsion and terror as I learned, read, and contemplated its meaning. Moreover, I sometimes experienced this denial and silence when attempting to discuss my work with others. Bordo suggests that ecological incidents (Chernobyl, mass extinctions, Bhopal, oil spills) pervade "the media as images which are as numbing as they are uninterpretable and banal" (p. 175). The response to such terror is pragmatism and denial: "The denial is in the assurance that actions are already being taken, including the action of announcing and reporting, to address the latest crisis" (ibid.). Technological steps are taken to "control the sublime by removing the threat beyond the veil of technological procedure" (p. 176). Accordingly, Bordo suggests that the important work is to deconstruct these screens of "technological representation" (ibid.), to recognize them as screens and to *look* at what is hidden behind them.

This then cycles back to trauma and anxiety. How can the work of teaching begin taking Bordo's suggestion to heart - to unveil these screens of technologies and language, to "relocate the human psyche" in the "life process" (Fisher, 2002, p. xvii)? Is it possible to explore and interpret teaching as a healing and spiritual project of the renewal of relationships in time, terrestrial histories and belongings, teaching as a project of accompanying, sharing, creativity and dialogue, not about preparing for the future, but about how we (the human species *we*) most profoundly and in the deepest ways belong *to* and *in* the world?

on unknowing

This dissertation is about many kinds of *unknowing*: Unknowing as opening and deconstruction. Unknowing the future, the certainties of science and technology, and who and what we are as a species. Teaching as an act of unknowing, of profound uncertainty and interpretability. Don Domanski (2002) calls unknowing a "negative transcendence" – "an acceptance of sorrow, what the Japanese refer to as 'the slender sadness,' that runs through every moment of existence" (p. 246). It is about

> the fleetingness of lives lived in a world where nothing can be saved, where each new second eliminates the last and nothing can really be accumulated or held onto, where there are no handrails to guide you, no structures to lean upon. Unknowing, by my definition, is entering that state of being with a joy and wonder that comes from that very impermanency, from the absolute dispossession of everything we love and cherish. The wonder is that anything at all exists. The joy is that it does, even if it is as momentary as a human life. We can live this as a partial mode of attention or we can live within its movements, its cycles and treasure the phases, the round of it. We cannot grasp the world nor put it into an order. We can only experience it. (p. 246)

Unknowing might be a form of ethics, of taking up how life might be lived without certainty about the rightness of any decision, of taking responsibility even without knowing, always proceeding with doubt, and leaving the future open to not knowing ahead of time what will happen or putting the world 'into an order.' Jacques Derrida (1999) called this the space of *undecidability*; that is, the place of responsibility to a situation. This responsibility – in undecidability, in unknowing – is the true condition of all pedagogy. Decisions are made beyond the sphere of knowledge. Teachers experience this many times each day, which is why external political mandates and accountabilities are so distressing and uncomfortable. They are too *sure*. These in fact interfere with teachers' abilities to make good and right decisions for children's lives and learning in the moment. I recently raised this question at a political meeting of the local teachers' union and was told that "Teachers have to do things all the time that they feel are wrong." Indeed. This is what we work against, what I am struggling to work against in this dissertation and in my own teaching work. To be constantly commanded and told from outside the teaching community what this work *must be*, and how it *will be* measured is an unspeakable act of violence and colonization. These commands from *outside* work against the knowledge that it is impossible to ever know in the moment whether anything is the right decision or action or path. Derrida (1999) called this the condition of ethics:

> This is not only a problem but the *aporia* we have to face constantly. For me, however, the *aporia* is not simply paralysis, but the *aporia* or the *non-way* is the condition of walking: if there was no *aporia* we wouldn't walk, we wouldn't find our way; path-breaking implies *aporia*. This impossibility to find one's way is the condition of ethics. (p. 73)

Unknowing, as the condition of ethics, is the condition of teaching. Unknowing is also mystical. It is about making space. In education this might be about consciously making space for life and making space for children. Matthew Fox (2002) writes, "Our cosmology has made us anti-mystical. In a machine universe – which for the last two hundred years we've been told we live in – there's no room for the mystic. You don't want mystics fouling up the machine. There's no room for artists, and there's not a lot of room for children" (p. 70). Perhaps unknowing then is a space for the recovery of mystery and awe. Matthew Fox continues that "mysticism is awe… A civilization that's lost awe, an educational system that can't teach and nurture it, a worship system that is devoid of awe because it is so full of human verbosity, is perverse" (p. 71).

Unknowing the future is about trying to find ways to consciously give up all this preparation for the future that is not yet known, and to contemplate with pedagogical attention the ethical life of the present. To unknow the future is to open life to its present relations. To unknow the future is to *love* the future enough to not harm it with present certitudes. Andy Fisher (2002) has argued that from an ecopsychological perspective, what is lacking is not experts, but an "existential sensitivity" (p. 55), which requires a "retrieval of our embodiment" through reclaiming "a body that walks on, and is nourished by, the living earth" (p. 59). This is a heavy task for educational institutions that have inherited the traditions of separating bodies from selves, and selves from the world. My work here represents a beginning of an untangling of schools/teachings' relationships the life processes, and an attempt in my own practice and writing to discover and cultivate places of embodiment, mystery and awe in the face of the great difficulties that face the profession, the human species, and the earth.

four: *chapter overview*

During its writing, this dissertation unfolded into four essays on the *time(s) of teaching*, each standing alone yet interconnected and picking up themes from the others: time, mortality, future, ecology, language, and being – living and learning – in schools with children as a teacher. It is the thread of time that relates them all. The time of life and the time of death. The time of progress and technology. The time of language. The geological time of the earth. The overwhelming and incomprehensible time of the cosmos. And the time of the singular, individual human life. This work is about seeking connections, vast and distant as they seem, between walking on the banks of the North Saskatchewan River and having old memories awakened and what happened in Chernobyl in 1986, to what happens in a classroom in Calgary or Saint John, to children moving across the world as refugees fleeing violence and hunger, to the death of languages and species.

tumbling off the line of time

The chapter *Tumbling Off the Line of Time* focuses on some possibilities for critical, creative and conscious engagement through deconstructing ideas of 'progress' in relation to the work of teaching in schools. What might be necessary to open this learning and teaching work up to kinds of time other than industrial and clock time, to free the work of teaching in *this* time? This whole dissertation, but this chapter in particular, was inspired and indebted to the thought of Catherine Keller who in the past 20 years has worked to trace and excavate the ways Judeo-Christian (hence 'western') eschatologies, in their orientation towards the future and future rewards (in heaven or on earth), have created what she calls spiritual bodies without "limits or geographical ecologies." This has created, in her view, a lethal indifference towards nature: "That is, its distraction from the earth complies with the destruction of the earth" (1993, p. 37). If the contemporary push (*rush*) towards the future implies that schooling is distracted from the earth and complicit in its destruction, if education bows to the timeline of the economy and not the time of bodies and the time of the earth's ecology, and if our beings and our bodies are part of the global and ancient habitat that has supported life from its very beginnings on this planet, what might happen when thought, teaching, curriculum, and human living, are exposed to this deconstructive moment provoked by historical and ecological insight?

remembering Chernobyl, remembering the future

Chernobyl, the biggest ecological human-made accident to this time, is a recent environmental catastrophe that lingers with poisonous destructiveness at the edge of human consciousness. It also lingers on the planet in real time and space with much 'unfinished business.' The chapter, *Remembering Chernobyl, Remembering the Future*, takes as its starting point the 1986 nuclear accident at Chernobyl in the Ukraine and opens into a meditation on the meaning of nuclear time in relation to education. Nuclear time is an inheritance ushered in by 20th century science and war and in that sense is new to the human citizens of the planet. The ghosts of both Chernobyl in particular, and nuclear science in general (in the production of power and weapons), will haunt the future into a far and unknown time.

In meditating on the meaning of remembering Chernobyl for education, this essay was the most profoundly difficult writing I have ever undertaken. I learned that there is *no way* to make this topic palatable while really *looking* at it. Chernobyl is sublime, mythical and real at once, and absolutely shattering to the hopefulness of the myth of progress. Life itself falls into an abyss here. This chapter represents, for me as a writer/scholar/teacher, the thorny, arduous, impossible and tiring work of attempting to look towards the time of the future while remaining in the present. I began to understand just how much the future might be already predictable and known, and it is not the future that is wished for human descendents. This topic became very intimate and personal as I was at the same time writing it and teaching/being with young children every day. To imagine a future world for these children and their children's children to inhabit in the presence of Chernobyl (as symbol for all nuclear time) seems to create an ontological crisis. *Remembering,* that is meditating on, Chernobyl opens the screen of technology, deconstructs education and leaves instead a space of open grief and silence which in the end might by the one transformative tool we have to go to those places that are deep and dark and that cut through the surfaces and shadows of 21st century life. This chapter is about forgetting, mourning, and memory. It is about times and places and borders bleeding together in the recognition that the time of life transcends such human constructions as politics, economics, and schools. It is about how humans might (or might not) make a home now and in the future for life on this planet.

losing wonder: thoughts on nature, mortality, education

The chapter, *Losing Wonder: Thoughts on Nature, Mortality, Education*, takes up the ultimate time limit of the individual human life: our own mortality. Poet David Whyte (2001) writes about the ways that keeping mortality close in our thoughts is part of the "fierce ecologies of belonging" (p. 108). He writes: "This notion of my own vulnerability [has] something to do with belonging to the world like everything and everybody else" (p. 107). This meditation cycles around those fragile moments when mortality might break through the egos of teaching. It explores again the meaning of human separation from the real and natural world from which human bodies and spirits are born, sustained, and related, and to which they *all* will inevitably return. This is the *real* world, in contrast to the 'real' world of corporate growth, workers and future economies. I use both the frames of a recent Canadian film and a Canadian novel to raise questions and ideas about the terminal condition of all life and of the human species. I also reflect on a story from my childhood and its linking loops to my adult living and to this work that I have done here. In each of the reflections in this chapter, a teacher arrives at a personal crisis point in their own relationship to their work as teachers. I explore this moment specifically and its meaning for the work of teaching in general. As their own mortality breaks through the surfaces of their lives, these teachers become paralyzed in their work, realizing that in the act of teaching they have lost their own wonder and sense of their own grounded experience in the world. I explore the ways ideas about attention and openness to time (and to the end of time) bring both an urgency and spaciousness to teaching and relationships in the present.

inhabitations: all the language in the world

The final chapter, *Inhabitations: All the Language in the World,* is a languaging response, an *unknowing* response, in and through language, across time and through space, tumbling through the first word(s) spoken, through paintings and carvings on rock walls, through millennia of human tongues intermingling in translation, through warning signs (in a future language not-yet-spoken) in the Nevada desert about nuclear wastes. Where in the wor(l)d are we? What is there to say? How might a teacher take up the most difficult questions of this time with dignity and courage? What are the ways of speaking about teaching and learning that hold spaces open for difference, diversity and multiplicity, in a time when the dominant and domineering political discourses are profoundly narrowing the possibilities for life and learning in democratic institutions like public schools? In particular, this is a meditation on the possibilities of imagining pedagogies through evolutionary and ecological principles of healthy living communities as a way of caring for the future of all life and beyond.

... The path is becoming overgrown with grasses and small bushes. Flat, grey, slate stepping stones lead through the young poplar trees with their crinkly white bark and filtering green leaves, past wild rose bushes wafting sweet scents in the summer, in the fall heavy laden with rosehips.

... Smooth logs on the ground invite sitting down. Stop. Stay awhile. Rest. The trees make shade and air for those who visit and those who dwell here; for insects, birds, mice, and for those who find home beneath the damp soil.

... I want *the children to be able to come here. I* want *them to be able to escape from the crowdedness of the big lawn. I* want *the wood to expand in depth and breadth to make room for the trees to reach roots down and leaves skyward.*

... I want *there to be more ground.*

2

Tumbling Off the Line of Time

It's late but everything comes next.
—Naomi Shihab Nye
(1994, p.93)

one: *eight meditations on the time of time*

I.

We begin the grade three school year in mathematics by meditating on the meaning of the number one. We think and talk for a long time and then write many notes together. The conversation deepens. The children get excited. Their ideas grow and bounce from one to the other.

There is only one universe, says a child.

There is only one me, adds another.

And there is only one of each human person ever in the one universe, says another.

One is unique! arrives a final comment, *everything that is alive only happens one time ever!*

The children start to laugh. In this moment of thoughtful expansiveness a palpable ripple of delight flows through our classroom as we experience our minds' ability to have such thoughts.

II.

hurry! do you have the time? every second counts! we have to be prepared. time is money. we're getting behind. don't waste a minute. time is running out...

III.

Living feels fast here, now, in the 21st century. Money, news, and ideas flit around the world at the push of a button. Instantaneous. Like time traveling. Like magic. Simultaneously mesmerizing, distracting, exhausting. Time has been compressed into no time at all. Who can keep track, or sort out what's important, in the midst of all this overflow, everything happening at once?

IV.

by the time our eyes see their star speed light
these ancient burning
suns are already
gone

The universe is 13.7 billion years old.[i]

In our own galaxy, the Milky Way, it takes the sun that warms this earth about 250 million years to rotate once through the galaxy (Glashow, 2001). Approximately four billion years ago, life emerged on *this* planet. Tiny single cells survived and thrived. Changed. Opened to possibility. Miraculous ungraspable mysteries, this long line of beginnings, chances, disasters, ancestors. We are here, conscious and unique human beings, emergent with everything else. The average anticipated life span of a human being depends where you are born. An average person born in the year 2006 in Canada might expect to live for 80.22 years, a person born is Swaziland just 32.62 years (CIA Factbook, 2006). A human life time. The deep time of the universe. How might we think these thoughts together?

V.

When I resumed classroom teaching again after eight years of graduate school and university teaching, I was struck, literally, by the many changes that had occurred in what seemed on the surface a very short time. Eight years: just eight rotations of the earth around the sun. No time at all in galactic time, yet, an entire lifetime in the years of those grade threes whose minds contained such big thoughts about life. And it was time enough, apparently, for the pressures and speed of globalizing corporate production and consumption culture to transform the cultures of schooling into something I barely recognized. Never before had I found this work so time-pressured or physically impossible, for the speed at which teachers and children were expected to produce and perform mountainous amounts of work had become overwhelming. Never before had I been as aware of the presence and governance of the ticking clock as a countdown to the future and a distraction from the present. An organic freedom which I had earlier in my teaching life perceived and experienced in schools had all but disappeared and seemed a far-off dream. Gone were the professional development days filled with intellectual study, conversation and learning, now replaced with the consumer culture of success. We were mandated to demonstrate constant improvement and often spend our already limited 'PD' time reviewing results and discussing how we will 'improve' our achievement results in reading, writing, and mathematics. Never before had I felt colonized and imprisoned in my teaching work. The possibility of teachers as intellectuals where wisdom resides in the elders in the profession and where children might have something to say seemed also to have vanished, if it ever existed. I had hoped for it, once, but that hope felt futile now.

It took this personal experience for me to understand what the teachers in the university classroom had been telling me was happening to their work in schools. As their teacher, I thought I was giving them good advice to resist it, to try to create a different culture. But now, from inside, I sensed the impossibility they were describing, the fatigue, the confusion, the oppression of time and space. No matter how hard I tried, I could not stop rushing, could not slow down, could not stop watching the clock, could not think properly. I felt like I was spending all my time catching up and never knowing where I was going. As I attempt to write about this, to even attempt writing about schools and teaching, awash personally with a feeling of destitution, overwhelmed by a feeling of not knowing what to say or think.

I think I have lost my faith.

VI.

Schools are among what Barbara Adam (2004) names the "key institutions of industrial society" that have come under the "pervasive dominance" (p. 139) of clock time, that is, globalized industrial and economic time. Time, she says, has become colonized and objectified as a precious commodity. It is difficult to think outside this structure when bound up inside it. And so, the spiritual, psychological and physical tensions experienced and lived in teaching and learning places are compressed in the irreconcilable space between clock-time and the future oriented vision of western globalized society and the time we feel in our bodies and relationships; that is, more profoundly, in the rhythms and cycles of life in the universe. As a teacher, I feel constantly reminded that *my job* is to prepare children for the future. Like a commandment pressing down on me, pressures and anxieties build as my work and children's lives in my classroom are measured and compared like never before. The curriculum feels crowded. There is so much to cover. At some level I know that time cannot be mastered, that it is beyond my human comprehension, but still, I hurry the children. I hurry myself. I have become an unwilling servant to capitalist time of production. Constantly feeling behind, I panic. The future is bearing down on us. *I have to get them ready.*

VII.

Mandates of perpetually preparing children and ourselves for something external in future time, whether that be measures like achievement exams or industrial/economic ideas like preparing children to be future workers often feel overwhelming and distracting and like they have little to do with the *real, intimate and local* world of the classrooms. Each day many of us who work in schools experience the living and joys and suffering of children and families - (or our own) - economical strains, health struggles, and the very real and time-bound flight from war, famine and ecological problems in the places they/we call home. Even when social and ecological catastrophes that are globally occurring everywhere do not always seem immediately present in our classrooms we are aware of them haunting whatever spaces they can find. Yet the dominant discourses of industrialized politics and education seem to deny any real space and time to respond to suffering or to articulate any different possibilities for the work of teaching and learning. It feels fundamentally impossible to intellectually or spiritually reconcile this living experience with the economic and future visions driving educational projects and dreams. *This work feels impossible.* Andy Fisher reflects (2002), "Anyone who knows what it is like to feel anxious or pressured – states in which it is hard to breathe – knows how claustrophobic our lived space can become and how tightly a dreaded future can squeeze in on us, such that we lose our ability to creatively and freely respond to the present moment" (p. 116). Who can imagine or foresee the present and therefore future implications of a loss of creativity, of an inability to psychologically respond to each other and to the world? No wonder we feel tired. No wonder we feel confused. *Have we forgotten the time of our living? The time of our bodies?*

VIII.

One of the great paradoxes of (post)modern life in North America is the ways that citizens are bombarded daily with the 'news' that the planet is 'failing', with harsh chastisement about lifestyles and consumption habits, and at the same time, by the same media tempted constantly to fill our lives with more stuff to be *happy*. The knowledge of global ecological and human distress seems near ubiquitous, yet attempting to think it into the educational theorizing and practice feels ever more difficult. As a teacher I am, most days, guiltily unable to live with these paradoxes, inconsistencies, and troubling hypocrisies in my own life much less in my life at school. How does one think of such things, much less speak them into educational spaces? On some level, we realize that the 'world' we are 'preparing' children for might be increasingly strained by international conflicts, human population growth and the accompanying distresses of crowding, troubles with pollution, and ever more expensive non-renewable resources. And yet, this is a conversation that emerges with great difficulty in schools and perhaps even provokes hostile responses at times when one attempts to bring it up except on a surface level. On the one hand are the threats to life, now and in the future, including real human (and other species) suffering on earth *now*, and on the other hand the social and political promises of progress and growth, which subsumes possibilities of other conversations, seducing with promises that the future will be better and what is happening now is just part of *arriving there and then*. While on some, perhaps many, levels it is easier to believe this, perhaps because it is simply difficult enough to get through this day, and its own immediate worries. But these sublime mysteries and ghosts of life and existence haunt the shadow spaces of our school. In the midst of preparing children for 'the future,' with the pressures of exams and narrowed measures of marking weighing down as heavy distractions, we become frantic to save life (itself). While we are preparing children for "the Ends" (the origins of this phrase is discussed later in this chapter), the truth of other possible ends arrives as a squeezing terror. We respond by frantically participating in recycling programs as our consumption habits create monumental and unthinkable amounts of wastes, programs, books, constantly updated electronics, paper, lunch garbage. When the media reports an ecological or political disaster we do a walk to raise funds for the Red Cross relief. We collect money for UNICEF at Halloween. We collect money and items for charities sending them across the planet while remarking how fortunate 'we' are while feeling sorry for 'them.' Breathless from all this running, it all seems just another thing to do in the name of global citizenship. We are overwhelmed with the demands of our work and the demands of life. *Hurry.*

two: ***teaching in the time of the great emptying***

What kind of world might children be being prepared for? This might be amongst the most urgent questions for education in the 21st century. What kind of world is it *now*? What kind of humans might we need to be to share this 'world' in the future?[2] But is it even possible to think and ask such questions, in education and elsewhere, in these times of circular economic logics? Joel Kovel (2002) attempts to deconstruct the ways capitalist logic works to encircle our thinking, decisions and behaviours: "Now everything is sacrificed to accumulation, and with the closure of the circle of globalization, there is no further room to externalize. The ecological crisis is the name for the global ecodestabilization accompanying global accumulation" (p. 82). At its most deep and broad extension, this question about what kind of world are we really 'preparing' children – and ourselves – for might really be about how are we are going to be able to face the *meanings* of living in the midst of a mass extinction event, a monumental disaster our species has initiated under the name of *progress*, a cataclysm of eco-genocidal suffering.[3] No other humans at any time during our species' geologically short existence have lived during such a time (or survived *through* such a time.) Will educational dreams collapse into rubble when attempting to think together the geological time of life, the human place in it, and the meaning of this ecological catastrophe? Out of environments rise human meanings and myths, the stories we tell ourselves. If each day, through each relationship and conversation and discovery and question, human beings are continually and cyclically coming into a sense of ourselves and our relationships to the world, what then is living and learning in degraded environments teaching? How are we participating consciously or unconsciously through our living and learning in the creation and destruction of the world?

On the surface, the reasons for taking up these questions are obvious and proclaimed by every save-the-earth campaign, but under the surface there are other less obvious meanings which may give hints about momentum towards other possibilities for shaping our various human lives and stories. What are the implications for thought, for human identity, for teaching, for living during this time of intense ecological distress? Who are we as a species? Who are we becoming? School, like any institution, teaches us who we are (and perhaps who we are not) in very radical ways.[4] If extinction is an absolute ending for a particular and unique expression of life, a closing of possible futures and relational unfoldings, is it a given that in a world of increasingly less ecological diversity and possibility over time that future generations of humans, if not proceeding carefully with consciousness and love, might become more self-centred, less open to difference, more impossibly inwardly focused on selves and seemingly insatiable (consumer) needs? Catherine Keller (1996) describes the ways that post-structuralism and other discourses of the academy (and schools!) have tended towards extreme anthropomorphism, have failed to consider the non-human place in the relations of life, and thus as a result in this time of devastating ecological collapse the implications are the "displacement of the entire biosphere of relations which precede, surround, and comprise the human" (p. 145). On a socio-ecological level, human beings might lose a sense of *who we are* in relation to those other beings, their emergence, and our shared and life supporting habitats.

Ecologist Paul Shepard (1999) called the 20th century the time of *our emptying*. The time of *our emptying*. Imagining himself providing a commentary in the voice of the community of non-human animals he wrote:

> Their own numbers leave little room for us, and in this is their great misunderstanding. They are wrong about our departure, thinking it to be a part of their progress instead of their emptying. *When we have gone they will not know who they are*. Supposing themselves to be the purpose of it all, purpose will elude them. Their world will fade into an endless dusk with no whippoorwill to call the owl in the evening and no thrush to make a dawn. (pp. 16-17, emphasis added)

When we have gone they will not know who they are. Out of touch with our relations, drowning in our own egos, we may feel lost and lonely, traumatized by living in devastated, exhausted, ecologically tight and stressed spaces with too much stuff accumulating around us. Rushing through the day at school, trying to do and be too much, it seems like there is no time to contemplate identity. *We do not know who we are....*

If a wholesome and healthy human identity depends on life's diversity, our relationships within that, and our humility, then this *emptying* might be understood as a spiritual identity crisis, what Matthew Fox (2002) calls a cosmological loneliness characterized by a loss of relationships and a deep longing for connections both spiritual and ecological. The important work, he suggests, is to consciously attempt to inhabit a cosmic sensibility; a deep spiritual awareness that the universe is our home, in all its massive age and time, to contemplate its mysteries, to not "take ourselves for granted" (p. 68). This insight about our relationships to time and space, to the ground and the air, to all the history and future of life, might be a difficult and profound ethical/spiritual challenge when our surroundings/culture constantly tells us that we are competing individuals surviving or thriving on our own, separate inside our private boundaries. Given this profoundly alienating life orientation, one that forgets our common origins with the rest of life, and that *does* take ourselves for granted, it is not difficult to imagine how we slip into these patterns in schools, oriented as they are towards future successes, individual measurement, and firmly embedded in the progress vision. How to become freed of this is a difficult question.

Western intellectual traditions perhaps find this especially hard to bear, and difficult to contemplate, bound up as we are in our daily living in the progress driven heritage we have received and embraced, that have shaped these educational institutions. "Remember what is at stake!" wrote Stephen Jay Gould (1989), "our most precious hope for the history of life, a hope that we would relinquish with greatest reluctance, involves the concepts of progress and predictability" (p. 230). While caught in the logic of this perspective, it seems difficult to imagine what education might look like if its purpose were not focused on preparation for the future, for work, and rather if curriculum and our attitudes and relationships were purposefully focused say on *exploring* (not knowing) with children our identities as human beings in the universe.

Reflecting back on his life's work as an ecologist, Paul Shepard (2002) commented:

> [This work] has given me, and continues to give me, a sense of the diverse forms creation can take and of my own limited place in an enormously complex other world that was not created for me. The condor, along with the frogs and salamanders that are vanishing, is a constant reminder that I am not the center of it all. (p. 251)

The thought that *I am not the centre of it all*, and not 'taking ourselves for granted,' is not a program that can be purchased to raise achievement, or measure in any observable way with rubrics or tests, rather it is an insight that from time to time crashes through the walls and doors when least expected, when something (or someone) happens to disclose other possible meanings of life. Generating and fostering the kinds of identities and sensibilities that might welcome and embrace such moments, rather than being shattered by them, rather than by reacting in violence (or more tests), might be a way of responding generously to re-orient relationships and senses of time(ing). Life draws near in all its fragile preciousness in those moments when a child in the school is terminally ill or dies suddenly, or when working with children with so called 'special' needs, whose bodies might pain them, or not perform for them, or they wear diapers to school, or they struggle day after day to speak their needs. These children who will never make that 'expected progress.' For a moment our own human mortality, singular and species, confronts us in the face of their frailty. And in this moment a thought might enter the mind, a sense of purpose driven not by saving whales or trees or ourselves, a thought about the ridiculous and meaningless focus of our work like preparing a child for a future that never will be, and a thought about restoring justice to our relationships, a healing attitude opening us to the "infinite intertwinement with all beings" (Thurman, 2004, p. 28). Perhaps in lingering with that thought a wholehearted life becomes possible, *if only for a moment*. Remembering inescapable dependencies on the cycles of life, our belongings together, that not just our identity, but our very existence depends on the great diversity and deep time of the universe and all the life that has preceded human history, unfolding to this moment, is the grounded place from where to respond to the world and also to one child. "With these beings who matter," writes Catherine Keller (2000) of these relationships, "in relation to whose infinite need and newness my finitude is called to its capacity. *Finitum capax infiniti.*[5] Only with them do I matter" (p. 92).

Canadian poet Don Domanski (2002) writes about his many year journey collecting fossils that was guided by desire to think about the meaning of time and human identity. His *finitude called to its capacity*, he relates an insight that arose during his meditations:

> The 'everyday' is the grand act of the human imagination. Nothing that we have constructed comes near to it in terms of sheer inventiveness. There is no 'everyday,' no 'normal' day. We all pretend there is. We all add to the myth. It's an act of pretense which helps us survive, to feel there's ground under our feet, when we know full well that beneath that ground there is an eternity of stars and galaxies, a great unknown which, on one of these *normal* days will swallow us whole. (p. 249)

Perhaps opening up new meanings for the work of teaching might begin with such a meditation on the time of time, on the meaning of time, the nature of time in this work. In this contemplative moment of realizing that life can 'swallow us whole,' relationships and time together become less 'everyday,' and more unique and precious. This is the moment to live graciously together, to be here, in this time, in deep time, the rooted and grounded gravity bound time of human living. Events in time – relationships, conversations, birth, death, life, a word – break though as deconstructive moments, as opening moments, possibilities, markers, and reminders embedded in the larger ongoing cycles of the universe. In *this* time when the life feels like it is being consumed by a future that feels already too crowded and close, too narrow and closed, this present moment immediate and full of its own presence, breaks through the time of the clock, through the noise of consumption, with a call to attend to relationships and living in *this* time and place.

To remember that we are small, fragile, mortal, and from this ancient old-stoned earth suspended in gravity relations within a more ancient universe might present itself as an ego-dissolving insight. Not the centre of it all nor taking for granted, the meanings we have created might not hold together. The edges open up. This might not mean something revolutionary, shattering and grand, but rather something barely noticeable, invoking small transformations only. But perhaps those are enough for today and ripple out into diverse possible tomorrows. It might be a quiet work, behind the scenes, perhaps even just personal and meditative and lonely. Maybe this is enough. Small mercies. Small acts. Kind thoughts. Gracious words. Patience now with this miraculous *one time happening in a universe* child before me, perhaps the most difficult part of my day.

time becomes progress: a dissociative temporality

If a deconstruction of the ways time is lived and imagined might open spaces for different kinds of thought and relationships to emerge in the work of teaching, then is it possible to purposefully invoke such meditations? Organic and ecological growth transform creatively from the inside. Despite the fears and paralysis some of us as teachers might feel in the face of corporate power penetrating our work from the outside, we might yet have some conscious choice in how we spend our day-to-day time, in the words we use to speak of children's lives and learning, in the words we use to respond to them and name the world with them. Even while acknowledging at the same time that the possibility of life being finally crushed and contained in these spaces exists as possibility, no matter our courage, thoughtfulness, or actions.

While there are many small distractions and urgencies competing for our attention, a place to begin such deconstructive work seems to be with the broader and deeper work of historical and ecological insight and analysis, understanding the paths that have led to this place, cultivating awareness that there is "no way back" but "there are different ways ahead" (Keller, 1996, p. 151). Barbara Adam (2004) reminds us, in her writing about industrial time, that "(o)nly when the fault lines in the logic become exposed and irresolvable contradictions begin to destroy the system from within can alternative visions take hold and openings for change be operationalized" (p. 137). Attempting to imagine and enact possible different ways ahead seems a particularly important work for teachers to engage consciously, intellectually and practically, given the origins and meaning of this massive temporal and spiritual disconnection that has occurred in our minds and hearts and its present effects on the work we attempt to do with young people. Catherine Keller (1996) encourages us to engage in the *difficult* work of facing "the legacy of the five hundred years during which an urban civilization inflicted the manmade apocalypse upon countless habitats" (p. 151). Facing this "legacy of five hundred years" means seeking to understand the his(story) of colonialism, the rise of industrialization and the emergence of globalized 'clock-time,' and their connectedness to factories and consumerism, and to the mass abuse of human populations and other life on earth.

Out of these relations, arise the origins of the Western religious faith in what is called economic and human 'progress,' working together to create the sense that time is a line, and therefore that a person's life(time) is also a line. This has become an unconscious and pervasive entanglement in the organization of North American living.

Schools as institutions were birthed from this process, and it is part of the historical *and present* context of a teacher's work. No matter what cheerful associations and hopes there might from time to time be about the possibilities and purposes of schools, there are close connections between all of this and schools with their underlying and surface preparing for work and future time, ringing bells, hard desks, dividing everything up into segments of time, age groups, subject areas, skills, levels. This has become a form of time-bondage. What might be necessary, to imagine different understandings, ways of being together in time and on earth, with all the 'others' is "a deconstruction of the paradigm and presumption of linear time: the bottom line of origin, the straight line of salvation history, the violent end of the line of time itself" (Keller, 2003, p. xvii). Perhaps, in time, through these facings, meditations, deconstructions, we might "tumble off the time-line of progress" (p. 229).

The etymology of the word 'clock' comes from *cloche*, the French word for bell (Whitrow, 1972, p. 52). During medieval times in Europe, life began to be dominated by this *cloche* ringing from the towers of church and monasteries, ordering and disciplining life, planting the seeds for what became the West's obsession with measuring and controlling time, easing open the paths for European control and exploitation that came with industrialization and colonization. G.J. Whitrow (1972) traces the early development of clock time, suggesting that throughout the medieval time cultural ideas of both linear and cyclic time might have prevailed side by side for a time. The agrarian people who still were a large portion of the population depended utterly on the land for their livelihood and survival and would have been influenced by the cycles of nature in its inevitability, its flow, and also its unpredictability and violence. At the same time, European scientists and scholars were increasingly interested in deciphering the cycles of the universe through astronomy and astrology. However, another cultural shift was beginning to occur. As urban areas spread, the mercantile class grew and a money economy arose "(t)he tempo of life was increased and time was now regarded as something valuable that was felt to be slipping away continually: after the fourteenth century public clocks in Italian cities struck all twenty-four hours of the day. Men were beginning to believe that 'time is money' and that one must try to use it economically" (Whitrow, 1972, p. 9). Machines were being invented. Ships were sailing across the oceans to the 'new world' claiming more land and space for the Europeans to use. And so, through time, industrialization created and naturalized a mechanized world with standardized time that could segment life like a clock and where everyone and everywhere would begin to bow to their hours of work. Other experiences and understandings of time, agrarian time, ecological time, relational time, became subsumed under the regimes of managed time. "The industrial norm," writes Barbara Adam (2004), "…is fundamentally rooted in clock time and underpinned by naturalized assumptions about not just the capacity but also the need to commodify, compress and control time" (p. 137). Through this process, over the past 500 years, human beings have altered the planet's ecology more than all the human beings who lived during the previous millennia. Indeed, during the 20th century alone, humans "used *ten times* more energy than their forebears over the entire thousand years preceding 1900" (p. xvi, Kennedy, in McNeill, 2000).

By the 20th century, this one form of clock or industrial time had essentially been standardized as a world-wide norm, at least in the world of production, money, business (Adam, 2004). Standardization of any form is necessarily blind to what is outside of its circle. In this way, with standardization might arrive a kind of extinction. If diversity and difference create healthy environments with many 'possible ways ahead,' then standardization erases complexity and therefore possibilities, openings, evolutions, other possible stories and tellings are closed, perhaps eventually forever. Consider the ways that schools, even though always 'standardized' through their original connections with factories, are being ever more increasingly standardized through the ways children are to be measured and the ways this is reported to governments. Learning time is counted down to the minute. Teachers have to hand in exact time-tables to administrators, and administrators have to hand these in to governments as part of ac*count*ability measurements. Tick tock.

At many schools, these time-tabling exercises continue to be not taken seriously. One must hand them in, certainly, but then they are never looked at again and teachers are trusted to cover the curriculum with their own classes in the most intuitive and responsive ways they can. But at a professional development session I recently attended, where we were supposed to be discussing how we teach science, a group of teachers from one school described how the increased focus on time and 'accountability' in the provincial school system has affected their work. The principal has required, as in all schools, that they each hand in a detailed time-line of their daily plans, outlining at precisely what time of day each subject will be covered. The principal has begun to show up unannounced in their classrooms, schedule in hand, to make sure that they are doing exactly what they said they'd be doing. If their schedule said "mathematics," she expected to see mathematics. So to every pedagogical suggestion at this session these teachers looked at one another across the table and commented "We can't do that" and "We can't do that at *our* school." Bound and constricted. They are controlled. They are afraid. When asked if they felt able to resist or teach differently, they answered firmly *no*.

The result of this process is that "No allusion to the space of time remains. Yet hand or digit, they still mark the progression of the modern state's capacity to regularize the spirits and the labor of its citizens, *to keep them in place by controlling their time"* (Keller, 1996, p. 118, emphasis in original). Such narrow purpose allows administrators, like factory managers monitoring production lines and ensuring quality control, to monitor every moment of a teacher's time and therefore of the children's lives, making sure the appointments with subjects are being kept. To make sure no time is being wasted. As teachers we might experience this binding control and fear without being able to identify the origins. We might think there is something wrong with us for not being able to keep up, not being organized and talented enough. We might be told we are 'too sensitive' for this work.

The globalized shift towards time being bound up in the flow and accumulation of capital paved the way for the natural world, and 'other' humans also, to be viewed as a valuable resource for human exploitation and consumption. The further we can be separated from natural life rhythms, the less we might see or understand the relationships and connections in the dependencies of survival on the planet. Kovel (2002) writes that "once time is bound in capitalist production, the subtle attunement to natural rhythms required for an ecological sensibility becomes thwarted" (p. 66). It has enabled humans to develop frames (literally) of mind that allow all of life to become so segmented into financial investments, where nature itself is forced to bow to the clock, to the extraction of individual resources use in time of need by humans (i.e. petrochemicals for cars or trees for notebooks). In schools, this is experienced as the constant buzzing interruption of 'bells,' the disciplining of time, forcing us to be always *on time*, to move to a schedule, both in curriculum topics and the calendar rhythm of days. There is a popular slogan hanging as a poster on the walls in some schools: *Children Are Our Greatest Natural Resource*. While this is no doubt meant to be a positive message, its sinister undertones cannot be ignored, as we know what happens to natural resources. Such frames of thought are possible only in a time and place where time has been separated from any ecological associations at all. The place doesn't matter, the weather doesn't matter, the past doesn't matter, a person's name doesn't matter. All this is of no account and the present is consumed by an imaginary future. Barbara Adam (2004) writes:

> With the mechanical clock, time became disassociated from planetary rhythms and seasons, from change and ageing, from experience and memory. It became independent from time and space, self-sufficient, empty of meaning and thus apparently neutral. This allowed for entirely new associations, linkages and contents to be developed and imposed. (p.114)

Once the ecological linkages of timefulness and placefulness have been severed in the imagination, the life-sustaining connections of the planet are no longer obvious, and it becomes easier to exploit the natural world, or another person, as given. Thus, with clock time, a "dissociative temporality" (Keller, 1996, p. 98) emerged that was necessary for industrialization, for consuming the earth and its energies, a "massive social abstraction of time" necessary for doing the "dirty work of empire and commerce" (p.119). It allows us to separate various aspects of crisis, and our 'selves' from the whole thing: to not see the connection between driving a car, and the death of a whale, between lettuce and broccoli imported from factory farms and children in Mexico with developmental problems caused by pesticides. Segmentation creates distance, and distance creates separation and dis-interest. "As abstract value (time) [can] be exchanged with other abstract values such as money" (Adam, 2004, p. 114). In this way, economic time ignores finitude. As long as there is another worker, as long as there is another tree, mortality is of no account. That a tree took 100 years to grow, but less than 24 hours to become perfectly white bleached pulp for toilet paper is not calculated together. Divorced from the time of the earth, any creaturely life, the past doesn't matter, and the future is imaginary. And meanwhile, the world is consumed. While an overwhelming percentage of the world experiences daily hunger, the west obsesses with its obesity problems.

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The city of Saint John, on the Atlantic Coast, is an old industrial city with deep and still obvious colonial roots. Samuel de Champlain sailed into the Bay of Fundy and to the mouth of the Saint John River with his ships on the feast day of Saint John, June 24, 1604, and claimed the land for France, initiating the beginnings of colonial exploration and exploitation in that part of North America. As in many places in the world, humans had already lived there for many thousands of years, and the river already had a name: for the Maliseet, or Wolastoqiyik who had camped along its banks for centuries, the Saint John was known as the Wolastoq.[6]

In contemporary Saint John, a twenty-four hour workday prevails, 365 days a year. Production never stops. Some grocery stores are open 24 hours a day to feed shift workers' needs. Awakening in the night to the sound of the ships' fog horns, I would see the flickering flames of the oil refinery cast an eerie red glow on the walls, and if the wind was blowing the 'right' way, smell the acrid pollution of the pulp mill or the nauseating smell of fish meal being unloaded at the port. There seemed no fewer ships and tugboats in the port on days and nights of minus thirty degrees, wicked winds and ice-flows, than on the warm days of summer. It felt like the life energy of the planet, and the people, was being sucked up and spit back out as poison, falling on land and sea, drifting through air, down river, into lungs and tissues. The cycles and demands of nature held little sway here as everything bowed to the clock. Although toilet paper seems to appear magically, *softly* even with its price reduced, in big box stores in large cities across the nation, in this city the truth and source of its origins showed in the exhaustion of people and the earth, in ecological and bodily destruction. David G. Smith (2006) writes, "In a sense, colonialism has come full circle/to feed on its own progeny, like *Chronos*, the Greek god who ate his own children. Economic time is chronological time, the clearly measured time necessary to evaluate efficiencies of production" (p. 114). Nature becomes instead an inconvenience and something else to be overcome and mastered in pursuit of economic goals. In this place the tight line between colonialism, industrialization, future, institutions like schools, was strangling. That the primary purpose of life there was economic was never concealed beneath facades like the fine suburban store fronts of other cities. The community's worry about the landscape, the whales, the salmon, the forests, was also not concealed, but deeper immediate worries prevailed like feeding one's family and having 'a job,' no matter what kind of drudgery it was (like low paid call centres for corporate America). The sacrifice of nature seemed necessary in the name of both immediate survival and future progress.

three: *entanglements*

entanglements: the time line of progress

Amongst the most strongly orienting ideas of Western culture, and a further incarnation of 'clock-time,' is the notion that life on earth is governed by 'progress.' Like a religious myth, it inspires and empowers our faith, economy, politics science, technology, and most certainly schools with our forward-facing vision and our constant measuring of children's 'growth.' Animating this faith is the idea that time is a line, singular and straight, characterized by constant growing and improvement, and moving in one purposeful direction which is into the future. And not just any future, but a glittery promised future that is distinctly better than the life we live here and now. That future is always just around the corner.

At the time of this writing, the province of Alberta has piloted and implemented, despite a great deal of political opposition, a new policy called "GLA" (Grade Level Achievement, sometimes called GLAR, the "R" being "results") to be enacted in elementary and junior high schools by the end of 2007 school year. Under the rhetoric of 'school improvement' it involves teachers reporting to parents and the government the precise 'grade level of achievement' a child has reached in Language Arts and Mathematics. In this way, children can be monitored and tracked from year to year, not just a single child but all school-aged children at once. That the government is keeping track of the progress of its 'investment' may or may not be a cynical interpretation. Teachers are being (re)trained in workshops on methods to assess and report this data on children. Many teachers seem to feel distressed by this process as they articulate publicly that there is something that doesn't *feel* right about it, it seems out of sync with our lives with children somehow, even though many people can't quite say exactly what causes their discomfort. Reasons I have heard given are as diverse as "the children will feel bad," or "parents will be angry at me," to a critique of the reductionism and impossibility of reducing a complex child (and curriculum, learning and knowing) to a single digit number rating, to the thought that the process infringes on children's (therefore citizens') rights to privacy as information about them is being collected, submitted and stored in a database to which they have not consented. The present structure and atmosphere of education, bound up as it is in this process, does not easily allow for the deeper analysis and questions to be asked, nor extended or democratic conversations to take place about it. When questions are asked they are most often met with outright aggression, comments like "just do it" and "it's your job," or with circular and pedantic reasoning like "You'll see, it'll be good for everyone," and that "Children *like to know* if they're behind, so that they can see when they are making progress."

These political sleights of hand occur like lightening speed, like the push of an electronic button. It is difficult to trace their precise origins or how they emerged. It is important to realize, that similar to the 'No Child Left Behind' policy in the United States, these policies are not a 'change' from the prevailing beliefs of this society, but rather a reflection, a deep entanglement, of these visions of progress, of time and of the future that order our living. The circle turns around again and we can't get out.

Our faith in progress is so strong, so blinding, indeed *so religious*, that even though we are aware of the ecological collapse of our life supports on the planet, and can predict the kinds of futures the human species might face, indeed our science fiction, movies and newspapers are full of it, we may persist in our trust that the knowledge and technology of the future will be able to solve whatever problems we might create before we arrive. Even so, even though we intuit and hear and even see what is happening around us, not tomorrow, but today, the language of progress is so forceful, that anyone who speaks against it is made to seem crazy. Drawing on the work of David Noble, Andy Fisher (2002) writes "the ideology of technological progress is used to 'define the bounds of sanity, of respectable discourse, of reasonable behavior.'" (p. 160). This is why it is difficult to think or speak about it in schools, bound up as they are in the story of progress, and why teachers who question policies like GLAR might be met with aggressive words or simply dismissed as too sensitive, not up to the job.

Although it is an underlying cultural myth that drives so much of life in the West, many people (and not just scholars) are not faith-filled or optimistic about this idea of progress, nor about the ticking clock that keeps us always on time. Emmanuel Levinas (1999), a holocaust survivor influenced by his 20th century life and many years of post-holocaust meditation cautions, "I don't say that all is for the best, and the idea of progress doesn't seem to me very reliable" (p. 171). Wendell Berry (2000) calls it the language which has "dismembered and defaced" (p. 8) our world. Ronald Wright (2004) calls it an "ideological pathology" (p. 61). What is pathological about this vision is that under such a view the future can be indefinitely delayed to a mythical future place, that under such a view, children, and all humans, other species, perhaps life itself, can be seen as resources (or impediments to progress). Andy Fisher (2002) writes that a "high-altitude narrative about progress is used to explain away obvious human, social, and ecological losses as necessary costs along the way to a better future – those who suffer are enjoined simply to "look for future deliverance" (p. 157). Indeed, he continues, we are told we "can't stand in the way of progress, even if it kills us" (ibid). The living spaces of air, earth and sea, and even outer space, are seen as expendable in the names of profit, progress or nation. The sacrifice of the whale, or the child, or a community, or an ecosystem becomes necessary to keep the market going like clockwork and everything is kept on time.

How is it that western culture has come to place our hopes in the future? And what if this 'better' and promising future is not coming, but rather closing before it even has a possibility to become? In her deconstruction of Western views of time and progress, Catherine Keller (1986, 1993, 1996)[7] offers an ecological possibility for the powerful emergence of these progress beliefs, tracing the development of these cultural patterns and stories through preceding centuries, arguing that the progress-millennialism of modernity is an example of the secularization of Christian apocalypse mythology. Naming it a civilizational and historical habit, she speculates that we are caught, unconscious and unaware, in the grips of the Christian apocalypse narrative shaken free of its religious roots. In this thought time is imagined as a line with a distinct beginning and end. Further and more importantly on a deeply unconscious level it facilitates the belief that *the end* is coming soon. (So why care about a hundred generations into the future?). What if, Catherine Keller (1996) asks, "given the modern quest for utopia through the exploitation of the earth, a historic deadline, a death-line, is after all unwinding" (p. 137)? Tracing the historical roots of this time mythology/pathology through Christianity and patriarchy, and the rise of apocalyptic narratives and the promise of salvation later - and then their secular transformation through colonization into what has become global capitalism, she writes that "Western modernity has espoused an optimistic millennialism of progress while busily facilitating the most demented of ecological or nuclear dooms" (p. 2).

David G. Smith (2006) similarly explores the meanings of the futuristic orientation of teaching in the Western traditions as "frozen futurism," that is, both teaching for something that never arrives and at the same time for something that has arrived and repeats itself endlessly over again, erasing and closing other possible earthly futures:

> Indeed, to paraphrase Loy, the West lives in a kind of frozen futurism in which what was expected to be revealed *has* been revealed, and what the revelation discloses is that the future will always be more of this, a perpetual unfolding of more and more of this. In this context what education becomes is nothing more and more of what it always was. The details may vary over time, but the essential grammar remains the same: Education seems like a preparation for something that never happens because, in the deepest sense, it has *already happened*, over and over. So built into the anticipations of teaching is a mask of the future that freezes teaching in a futurist orientation such that, in real terms, there is no future because the future already is. (p. 25)

For me, in my own teaching practice, the hopelessness and incomprehensibility of this future orientation, the seemingly inevitable movement along the line of time while at the same time not really being able to move or change at all, visits me most at those times when the true and real sublime experiences of human living, that is death and birth, crash through into the classroom which is not, in the end, impenetrable by the movement of life. The phone rings by the coat hooks. Someone has a new baby sister! We all laugh with pleasure. The phone rings by the coat hooks. Someone's grandfather, who has been suffering so much pain, has died. There is relief and sadness. Life moves on, unfolds, not finished, not closed, not impossible, not frozen or paralyzed, but full of feeling and intimacy. But then the bell rings and the running and forgetting begin again.

Also exploring the futuristic hopes of Western cultures, Paul Shepard (2002) interprets a different and related historical ecological possibility, tracing perhaps further "back" on the line of time – pre-dating Christianity – the origins of the hopes placed in the progress narrative:

> These beliefs emerge from a legacy of catastrophic destruction by people we now identify as Sumerian, Mesopotamian, Persian, Indo-

> European, Hebrew, Greek, and Roman. Their ideas of themselves emerged in a place where soils were depleted, forests had already been seriously damaged, and the environment was increasingly subject to drought, flooding, and the outbreak of pests…. If the world in which one lives is rotten, impoverished, unsustaining, if it seems to be exhausted and to offer no hope and no connections, one's hopes would be placed in another life or another world. (pp. 248-249)

Given this, I only wonder now, if the world felt depleted and damaged *then*, and gave rise to this construct of myths and beliefs, what will be the future myths told by today's human descendents? What story is being embedded and embodied in children who are alive today, growing up in impoverished ecosystems and degraded environments and separated from any authentic experience of the 'natural world'? Recently, my class visited an art studio outside the city. From the school bus windows the children were excited to see the "horses!" by the side of the road. I told them they were cows. They persisted, "Some of them *could* be horses!" These same children, who could not recognize the most domestic of farm animals, were also overwhelmingly amazed when they realized that we could grow a plant from the seeds inside fruit! Apples, lemons, red peppers, each of them sprouted and grew before our eyes. The children began to spontaneously reflect on the cycle of life of that plant, what it required to be able to grow more fruit (soil, sun, water, nourishment, the earth), and at least for a moment they knew that their food did not only come from a store, but from something larger and deeper than that. How can spaces be cultivated for children to make these authentic connections, a reverent thought, between the nourishment of their own bodies, and the sun, the wind, the rain, the seed, the plant, indeed, the time it takes life to cycle through its many connections?

entanglements: eating the future

What does the future orientation and progress vision of industrial economic time do *to time*? To our relationships and to our lives 'in time'? What does this mean for teaching, for our lives with children, for schools with their future orientation that arose out of industrialization and have maintained that link and meaning through more than a century? How do we understand what such an imaginary, privileging profit over people, profit over life, and the future over the present means for the human species' relations to the earth, each other, other beings, and to the very real future? The infinitely deferred future never does arrive, meanwhile, the *very real* future, the one we live in and experience with bodies and breath, arrives in force and materiality every day, moment by moment.

The French philosopher Jean-Luc Nancy (2003) writes that the 20th century has been the century of "expropriating from beings their conditions of existence" (p. 18). He contrasts the idea of the *right to life*, or the right to exist, with the ways that capitalist relations consumes time, bodies and being. "Existing," he defines, "is a here and now of being, it is *to be* a here -and now of being" (p. 29). But in the clock time of industrial capital economics many lives (and not just human) are relegated to a place outside of time, being or meaning. He writes that these lives, who have a right to life, are:

> stripped of the conditions of existence. When this happens, beings are the pure instrument or object of a production, of a history, process, or system, always deported in advance from the here and now, always and only in the elsewhere and in the afterward of hunger, fear, and survival, or of wages, savings and accumulation. (p. 19)

Deported in advance from the here and now, globalized capitalism asks that bodies, hunger, pain, suffering in the now, in relation, in real places and spaces be ignored, deferring and displacing them into and in the name of the future. "The 'global market' only endures and prospers by a massive expropriation of this sort (and today, above all, of the South by the North)" (Nancy, 2003, p. 20). Under this future orientation, time is squeezed, compressed together, and the present disappears in what Catherine Keller (1996) calls the "closure of time" (p. 101) where the *future is known before it is lived*[8]. Such a focus creates for children a pre-determined identity as future workers which erases their present life as young humans who now even have something to already contribute to the world. Their past butts up against their future and condenses their lives to a single point, to a grade level of achievement perhaps, and the present disappears. Jean Luc Nancy (2003) describes this as "a linear, continuous time, without space (of time), and always pressed up against its own 'after'" (p. 21). Privileging the future in this way disrupts the possibility of relations now and here, and allows violence to be enacted in the present, in the service of progress, in the name of the future.

When combined with an unwavering faith in technology which even now is failing to provide solutions in the present much less the unpredictable future, the future-progress paradigm might yet prove lethal. It is also creating a problematic relationship with children in another way: in trusting that the technology of the future will solve the problems created in this present, children's identities are not only constructed as future workers, but they are also envisioned as *saviours* of the future they are being prepared for. While on the one hand, we might worry and feel anxious about the state of the world, we hope that life on the planet will be fine in the future for these children we teach. Subconsciously (or consciously) a burden is placed on the future, on the children we teach now. In this way children will supposedly be more 'advanced,' will need to *know more* than 'us,' the technology that 'they' have will have to be better and able to solve more problems.

But what if this faith in the future of science and technology (and therefore the future of children) to 'save' the world is misplaced? What if that future is already being emptied of possibilities and mortgaged into a debt beyond repayment or forgiveness? Barbara Adam (2004) suggests that "The economy therefore operates in the sphere between present and future with a view to using the future to secure the present. To achieve that task, it borrows from the future to finance the present" (p. 141). She continues: "Such radical present-orientation, be this in economics, science or politics, makes parasitic use of the future – our own and that of successor generations (…) a future that is organized, regulated, tamed, safeguarded, colonized and foreclosed *now*" (p. 142). Catherine Keller (2002) also names the faith in progress, and particularly the hopes placed in the future knowledge of human descendents, a "parasitism that feeds even off the future" (p. 279). Nuclear technologies might be the strongest example of the way this banking metaphor plays out in real time and places. Since the knowledge is not available now to solve the problem of wastes, great faith is placed in future abilities of humans to have the knowledge and technology to deal with them later. Indeed, as discussed in the chapter about Chernobyl, although the wastes from nuclear power and weapons production are piling up globally, the proposed solutions (including construction of 'safe' storage sites) are projected to be built so far in the future that most adults alive today will *not be alive then* to carry out the plans. This is a new ethical place that no past human generations have had to face, and a heavy burden to place on teachers.

No matter its great promises to save, future technology does not and will not bring back what has been emptied in the progress process. This gathering debt cannot be repaid. What has been used up cannot be brought back, and suffering that has occurred cannot be atoned for. Species. Oil. Trees. Human cultures. Children. What has been expropriated is gone, in the past now, finished. In this space-time that is no place and no time the consequences are "played out in the lived temporalities of nature, the intricate choreography of rhythms, in successors' bodies and environments" (Adam, 2004, p. 142). In this expropriation, and in orienting pedagogical life by measuring children *towards* that future that is being borrowed from, the present also disappears. We are "shutting down the future in advance, and thus closing out the polyvalences and possibilities of present times" (Keller, 1996, p. 100). That miraculous moment in our classroom when the children shared insights about each life, human or otherwise, being unique and miraculous and a once in the time of the universe occurrence is leveled. This kind of radical difference and diversity which has brought life to this moment in time strains against goals of standardization and predictability.

Children's learning happens in real time and real place. Intuitively, and through experience, we might sense that learning is organic, embedded and ecological, and not a lock-step line of predictable progress. As teachers we might create circumstances, places, where certain kinds of thinking and learning might take place. We might invite children to participate as citizens in the world. We might be open to their wonderings and allow them to follow the paths they see opening up before them, even if this isn't what interests us at the moment. We might do this out of profound respect for their dignity as growing and unique persons. Something grand and spectacular doesn't happen often, only a slow and immeasurable process, barely discernable, through much subtle work by the teacher, listening, watching, weaving that life together. After months of being together, months of hard and careful work, and faith in the process, and love for life, a story/picture emerges in the learning community, a shared space that has been created together. Each conversation might matter to what emerges in the end, and that end cannot be seen or known. Yet. To create it ahead of time is a violence to the potential of the future.

I recently visited an elementary school that is constructed completely from poured concrete. The structure had almost no windows and most spaces inside had no natural light. Inspired by the Cold War architecture of its construction era, the school looks like a nuclear bomb shelter, already anticipating the death of the 'outside' and therefore no need to look at it or experience it from 'inside.' In order to maximize learning time, there was no recess break to go outside. The children from some of the highest poverty neighbourhoods in the city attend this school. Catherine Keller (1996) argues that apocalypse doesn't remember habitat (our intimate place, our home), it "forgets forward" (p. 150). Is it this act of 'forgetting forward' the lives of children, erasing their present and placing them in an un-real future of false promises, that might explain how a community of adults can allow children to spend five hours a day, for seven years of their lives in a dark and airless bunker and not be outraged?

But now? Each child's life is compressed into a score, a product rating. Each rating is reduced into a point, a predefined standard on a timeline that progresses in one direction only, and to not reach the right point at the right time constitutes failure, not just on the part of the child, but by the teacher, by the parent(s). 'Forgetting forward,' distracted from the real present and the possibilities of the future, we might become so obsessed with meeting these targets, these points on the line, that it stops us from naming what is happening around us. It is at these points that pedagogy is emptied of its meaning of walking with children in life, and placed instead in service to money and to the time economy where children become the 'greatest natural resource.' They are, naturally, the 'bottom line.' Children's real 'work' now, which is their living, their learning, their playing, their presence on earth, doesn't matter. Because children's labour in schools is not contributing to the labour of the money economy, their time that they spend in school is at very subtle levels not considered important and it becomes a bracketed time of waiting – of waiting for the future to appear. This gives a hint towards understanding how schools can suck up children's lifetimes and not many citizens seem to complain or feel that something is going wrong, even when they are in a school that looks like a bomb shelter one hears no protest. Barbara Adam (2004) points out that children are not yet part of the economy's wealth creating structures therefore they are "unproductive" and "their time decreed 'worthless.'" I refer here to children in the West and not to the hundreds of millions of children globally involved in difficult, dangerous and menial labour just to 'survive,' their life times expropriated and ground under in a myriad of other ways. This is the dark shadow of this story which surfaces in the unraveling of the line of time, in the connectedness and intimacy of life which cannot in the end be undone or escaped from. Of children, Adam writes, "Outside the charmed circle of the tightly delimited time economy, their time gets positions at the bottom of the hierarchy of temporal relations" (p. 127). Similarly, judging from many political commentaries about 'failing' education, teachers' labour (mostly women) is not considered important or productive except in that it is preparing children for that future time when their labour will be productive and they will no longer be a drain on the economy.

In a strange twist, however, the present structural logic of education does give children (or university students) a value for their work. They are being monitored, measured, and placed in a hierarchy that will be important to (some of them) later. They are practicing 'skills' and 'earning' grades, which can be exchanged for admission to other institutions, such as universities, which then allow them their 'place' in the economic workforce. No wonder, when the topic of grading or not grading in schools and universities is brought up, some people become so anxious. These ideas and practices are so deeply integrated throughout our industrial/time-bound reality that it is difficult to see or imagine other possibilities for living and learning. It seems like the 'natural way' and 'that's just the way it is.' Orienting education towards future work and progress is therefore one of the most powerful central organizers possible. We prepare for the future by practicing certain skills and getting a diploma. We exchange this paper for a job. A job is life. With a job we buy what we need. Someone produces what we need. In the industrial economy becoming 'jobless' is the worst possible thing as one is cast out of a meaningful life and judged worthless, not contributing. The fear of joblessness, and probably properly so, makes it difficult to alter patterns of thought and behavior, to speak differently about living. These go against what seems 'normal' and 'natural' in this economic 'cycle' and so are deeply threatening to that system.

entanglements: the time of separate-ness

Psychologically, spiritually, materially this progress future oriented view of time (as a line) paralyzes us in time and space. We cannot move. Dividing not only moments of time, but people into distinct individuals, individuals separated from the matrix of life that sustains being alive, nature there for human use and consumption. Days are divided into segments, children divided into ages, categories, levels. Everything in life becomes fragmented. Piece work. Shift work. Leveled. Time, life, uniqueness, diversity are flattened. It becomes difficult, without conscious focus, to see the profound interconnectedness and flows and cycles of life upon which human living deeply depend. Instead, it enables schools to be oriented around individualism and competition. Within this view, each child becomes a separate and bounded ego that can be shaped and measured and monitored. Perhaps seeing each moment as separate, each child as separate, is the frame of mind that allows things to be done and said to children in separate moment-by-moment ways, without imagining the implications and intertwining connections to the future.

The paradox of this view is that although we are 'individuals' we are not unique in the way that the children in our classroom philosophized and theorized the number one, not precious, not original and once in a universe miraculous uniqueness that each part of life is. Catherine Keller (1986) writes, "The mechanical common sense view of place as vacuum and time as line establishes a universe of separate and enduring individuals: individuals absolutely different from each other, absolutely the same as themselves" (p. 240). What is a child? Is s/he a predetermined person? Completely and utterly known ahead of time? No room for improvisation. No time to just be. No room to be(come) themselves. Identical to all others and a completely independent and separate competing individual at the same time. No place for acknowledgement of the individual story, joys, tragedies, and traumas that are part of each person's becoming in time, place and relationship. Because the only relationship that is important is the one to the economy, that is to training, to work in the 'world,' all other possible relationships are severed before they have a possibility to form. Removing the child from his or her own life story, personal and transhistorical story, there is only one story now. It doesn't matter who your family is, where you come from, what you've experienced. It does not allow for the naming of pain or family history or telling one's story. In this sense the globalized injustice of economic competition becomes the measure of a person's worth. The focus is narrow, specific, arbitrarily chosen, deleting the wholeness not just of the person, but of the world's pain and sorrow. In a double violence, it creates a space for divisions like 'normal' and not normal. For labels and categories. For deficiencies and diagnosis, for if a child cannot meet the expectations, they must be fixed. And so we further alienate them from themselves and the world through narrow and meaningless categories. It doesn't make any space for what a community of children and adults in school might create together, for that cannot be measured and stored in a database.

This ability to create vast divisions between times, spaces, life, and people has consequences for the earth. Teaching children to do this in schools, by making it seem already normal and natural, might be sending ripples, perhaps becoming cataclysmic waves, into the future. For again, as Barbara Adam (2004) points out that with globalized time, business can also dislocate itself from local spaces and therefore free itself ethically from responsibility and obligation to the place in which it exists: "The *effects* of the economic and scientific colonizing practices, in contrast, are felt at the lived level of embedded time as intergenerational inequity, environmental disasters and cultural destruction" (p. 139). These effects can be felt in schools in many ways, perhaps most materially in the presence of children who have come from those places so deeply affected by economic injustice and ecological hardship. In some schools in Canada these might be *the majority* of the children. Rather than being able to attend to these children's lives, to learn and be changed by this face to face human encounter, is there an attempt to absorb these children into the system under the banner of diversity, multiculturalism and hope for their futures? Like a business, a person can free themselves, whole cultures can dislocate and free themselves of responsibility. It seems within the realm of possibility that schools could dislocate not just the individuals within but the entire institution from the world.

By taking a child out of his or her own time, enforcing upon them the developmental and clock-bound time of the market with the intent to ensure that the 'future' child contributes financially and doesn't become an economic burden on the corporate state, the child's own unique life-time does not matter. The possibility of rhythms of discovery, thought, contemplation, of the child's relationship with the world, the soil, are disconnected. Those children in my class delighted in their sudden realization that the seeds in fruits could grow a new plant. They were curious and amazed at how long this cycle might take to produce fruit from a seed, perhaps longer than they've been alive. But their embodied knowledge of this is not what is being measured and so it is not noted. The process of thought that led up to this insight cannot be known by anyone not *here, present, now*, except as I relate it here, afterwards. Only those who have participated know what happened. It is not reducible or measurable.

Paul Shepard (1998) seemed to write with increasing frantic concern about the state of the planet in the final years of his life. He insisted that the fragmentation and alienation caused by the thinking together of time and progress in these ways is separating humans from "the domains of nonhuman life", is leaving us homeless, that the meaning of life is "eluding us in certain significant ways," (p. 12) and that we are no longer aware of the greater community of life on earth, including the spiritual presence of plants, animals, ancestors. This was, he felt, the most urgent challenge facing human beings into the future. This great dislocation has enabled humans to separate ourselves as a species from the *time* that it took the resources we are using to grow, or form, for cultures to form and grow, always and still changing and transforming. All this can be forgotten because they can be removed by human technologies in the blink of an eye. In this way, the focus on the future and the resources we 'need' erases our relationship to the past, to that oil that has been already there for *all* of human history, or those forests that developed and grew through a complex and long (in human years) ecological process after the last ice-age, or that there were forests and other life there before that. In our short human time perspective we accept these things as given, as always there, and as worldly gifts for 'our' use and profit (and some people's profit much more than others).

entanglements: a regime of fear and control

Entangled in these narratives that give us as teachers at least part of our identities, do we sometimes resent this teaching work, feeling that it steals our 'time', our lives, our energies, our purposes? People come to this profession for many individual reasons, and while these reasons might change over time for individual teachers, it seems unlikely that many would choose a kind of work where they feel exhausted all the time, or feel like they are unable to attend to children's needs, or that they are simply serfs in service to a political master. Seeking to understand how a regime of fear and control has been created in schools as institutions seems crucial to facing feelings of guilt and impotence, to externalizing it rather than internalizing it as 'our own fault' as individuals incapable and incompetent in dealing with the rigours of this 'job.' Is it possible that the work of teaching might be to deconstruct the system from within, to disclose the cracks in the institution, to address and heal our own suffering in this place so that we can address the suffering of the world through our work? So that in this way teaching might become a kind of healing work, healing for time, for the world, for ourselves?

If commodification, compression, colonization, control and clock-time are the five "Cs" of industrial time (Adam, 2004, p. 124), in educational spaces these "Cs" are being facilitated and achieved through ever increasing standardization over more and more places (the so-called 'internationalization' of education). In an attempt to reach higher levels of 'progress' and 'productivity,' commodification and control are enacted as increased surveillance emerging through a 'testing' culture of accountability where everything becomes a product that can and must be measured. Thus, in provinces like Alberta whose ethos depends primarily on industrial time, a surveillance culture (regime?) is enforced through testing, measuring, and reporting. Perhaps, through the creation of fear teachers will be brought 'in line.' Teachers are told by politicians that they must be 'helped' to understand their work and children are increasingly described in economic terms, not just as future competitors and workers, but as "Our Bottom Line" [9]. Another salient example arose recently in Britain, where teachers have been ordered to provide extra one-on-one tutoring to children who are 'failing,' or as their learning minister Jim Knight said at a conference, children who are "stuck in a rut," while children who are deemed "ahead" will be allowed to accelerate through school. He also promises (issues a threat) increased surveillance of schools with these words: there will be 'no more hiding places, no more coasting schools, no more using success on the surface as a pretext for complacency or offering disadvantage as a justification for poor performance.' (The Independent, Jan. 4, 2007, accessed online, 'Thousands fail to progress in the 'three Rs' after seven' by Richard Garner, Education Editor).

Indeed, to support the establishment and maintenance of this regime of control and fear, a new kind of linguistic and visual organizer seems to have appeared. Posters and slogans hang on the walls of schools, in some places mandated by governments or school boards to be there. The "Children Are Our Greatest Natural Resource" poster that I have witnessed in several schools is not among those coming from governments or school boards, which might give hints about our own internalized sense of purpose. "Skills for Work" announces the title of a poster hanging on the walls of elementary classrooms in one Canadian province, while older students see a version titled "Employability Skills." At least one nearby factory staffroom has this same poster hanging in a prominent place, completing a neat circle of parents (workers) and children (future workers) receiving the same message. A school district in Alberta has a recently renewed slogan, also on posters hanging prominently in school staffrooms: "It all Begins with the Ends."

These posters might tell us more about our cultural story than we imagine at first glance, our eyes might brush easily past, or we might take a second look. Or perhaps more insidiously, they enter our unconsciousness day after day until our cooperation and faith have been subtly coerced. The language of these posters collapses time, focused so much on the future of 'work' that the process, the middle journey, is inconsequential. "It all begins with the Ends" condenses the time and meaning of children's lives to the time that they will be 'citizens' who work and consume. Read through Catherine Keller's work, this poster's slogan is positively apocalyptic, bringing the End so near that it can be almost tasted, felt, touched.

It might be disturbing to contemplate how and why these posters have come to hang here at all. If one visits a large and wealthy corporation (like an oil company, or a law office), it seems unlikely that such hideous posters would have any space to belong there, rather, their spaces are decorated with fine art and furniture, creating and aesthetic, welcoming, and perhaps even comfortable place to work. Perhaps even a place where a 'worker' would feel entitled to deserve such finery and comfort. This is apparently not true of so-called lower skilled work places, such as fast food restaurants, pulp mills, or Wal Mart, where a consumer is privy to many of these kinds of posters, reminders of the purpose of the place (The Customer Is Always Right, Clean as You Go, Employability Skills, etc). That such posters have a place in schools might say something about the social status of schools in the government, corporate and public eye.[10]

History bears witness to physical objects like posters (flags, statues, symbols) being a sinister political tactic for public places used by regimes from both the left and the right to legitimate and coerce belonging and loyalty. In any case, these posters repeat, across work and learning spaces in a city or province, central educational goals and purposes, mantras over and over as powerful overarching and dominating organizing thoughts. It would be wrong to identify this as something 'new.' Since their beginnings schools have often publicly displayed religious or imperial iconography, including pictures of the Queen and religious symbols like crosses. In the case of these posters in schools, what *is* new is the ways that as icons they might be considered to be a form of propaganda demanding allegiance to a certain economic vision, to the futuristic progress and competition vision. By implication, they act as a supposed reminder to what our allegiance shall be, that the gods we should serve are named money and progress. They legitimate (and repeat) the purposes of capital cut free from time, earth and responsibility to life. This space is claimed by this idea. Like conquerors planting their nation's flag, the poster has entered from the outside, without permission, asking for allegiance. This allegiance may or may not be voluntary or willing, and may or may not be loyal to these ideas. The German word for allegiance is 'Die Untertanenpflicht.' It is a proper noun. 'Untertan' means *the subdued*, and *Pflicht* is one's duty or responsibility. So, in German, this word implies an imposed allegiance, and that it is the responsibility of the 'subdued' to carry out their duty, no matter what it is, or whether those people agree with what this duty entails. Has the time arrived when teachers have become *the subdued*, no longer able to speak at all to what seems good or right for children or the world?

The visual, linguistic and repetitive prominence of these posters ensures that the idea takes its place in the imagination, as much as a picture of a Queen, dictator or flag, as a symbol of what life there together means. A bullying mandate is foregrounded and fear is created in bodies and minds by the dominant discourses, under the political topic of *the children are failing*. There is never a hint that we might be failing *them*, or the future, but only that *they* are in need of remediation, taming, fixing. Again, the three main themes of this fall under the following topics: preparing for the future, preparing workers, and 'no child is left behind' (or stuck in a rut). Together they complete a logic something like 'work' is the meaning of life, and that growth without limits into the future is the purpose. The *Skills For Work*, and *It all Begins with the Ends* posters on the walls might be properly understood as *threats*, both social and political, binding schools tightly into industrial time and into the progress vision. As repetitive voices speaking from the walls, they attempt to tell us who we will be and how we will do it and what kind of timing we must have. With their rhetoric of preparing children for a scary competitive future where if you aren't 'ahead' you are 'behind' wedges itself into the schools with all its apocalyptic overtones, fostering fear and competition, speed and disconnection. In the current global ecological context, this is perhaps a race to the death where much of life will be literally 'left behind.'

In linking our teaching identity firmly to global corporatization, we might lose a sense of control or self-determination. Colonized from the outside, we are not asked our opinions, or given a voice in the destiny of this community or the world. "Indeed, probably the greatest threat to teaching today is the seeming indifference shown to the experience of teachers by those most responsible for framing the educational policies of the contemporary period" (Smith, 2006, p. 25). Space for improvisation, freedom, and complexity disappear (at least on the surface). Derrick Jensen (2004) describes an experience he had visiting a classroom as an adult and noticing the threatening posters on walls with rules to enforce "submission to authority." This lead him to reflect on his own experiences as a child in school, and he states, "I don't know how I survived it. I don't know how any children survive it. I guess the truth is that in a very real sense many don't. And *that* is the point" (p. 197). By themselves, these posters might mean nothing, might barely be noticed, could be ignored, but they arrive in these places with accompanying attitudes, pressures, and discourses, that press in on the possibilities of classroom time and space so that the breath can be crushed out, the imagination dimmed. The result might be a slow erosion of energy and sensibilities as some teachers retire and new teachers arrive who have not experienced other ways of being. It is easy for them to be made to feel like they are alone, or 'flaky,' or idealists with impossible visions. New teachers are telling me that *teaching is not what I thought it would be*. They hadn't expected the exhaustion and the meaningless paperwork, or that there would be no 'time' for planning, teaching, or simply being with children. Resistance is difficult, the strength wearies, people are easily divided, time runs out, and courage slips fast. And what happens to the present? This present time that is connected to all other times by contingent, complex, and unpredictable life. All of it. But now, the present disappears, and time is squeezed, compressed tightly together, the past crunching up against the future and condensing life into small places, tangling that strangled time line around us. We are entangled in the line of time.

Entanglement is dangerous. Deadly. The whales on the Atlantic coast of Canada (and other ocean creatures everywhere) are often entangled in ropes and fishing gear, radically and violently stopping their lives, their movement, their breath, their freedom. We buy dolphin friendly tuna. We don't know what else to do, even when we know spiritually that this is never enough. And we humans? Are we not also entangled in the violent tightness of this line? Are we not familiar with the tension, the squeezing of the breath, the sense of not being able to move, the running out of time, the feeling of unfreedom, and the lack of spaciousness in our lives. Perhaps we sometimes think we can solve these feelings by rushing faster, by buying more things or a bigger house or getting away from it all, by competing, by writing a new curriculum, by buying more teaching programs, by raising our standards, by building another factory, or by leaving no child behind. But these only pull the line tighter and tighter as we struggle to be free, to move with ease, to catch our breath.

The Woods Hole Oceanographic Institution (Madin, 2004) is working hard, study after study, to find a way to 'save' the North Atlantic right whales. Their tests and strategies range from trying to understand why the whales cannot sense the huge ships about to strike them, to testing more slippery fishing lines, to testing sedatives and medications administered by stun gun to drug and calm entangled whales so that they can be approached and untangled by hand. And I wonder: are we also trying to untangle ourselves, drugging ourselves pharmaceutically, to calm ourselves down, to get into a better mood. And drugging our children, to calm them down, to slow them down, to stop their struggling and acting out.

When I first saw those Skills for Work posters, I felt something like hope drain from my spirit, floating down the river like the rafts of foamy pollution from the factory where the poster also hung in the children's parents' workplace staffroom. Life felt tighter. Smaller. The link had suddenly been neatly made and a straight line pulled everything into a tight and tangling knot. These posters reveal a distinctly *unhidden* curriculum, pointing to the ways that schools are institutionally bound to industrial time, to all the factories up and down the road, down the river, to the consumerism, to the banks, to the places the ships were come to and from. Preparing children to be workers in the global economy takes on new significance in places full of temporary fickle and underpaid employment, unsatisfying and unchallenging meaningless labour and production that may bring food to the table but little else of relevance to a person's or community's life. In time, we might say good-bye to the whales, the grizzly bears, and thousands of plants and insects whose names we've never learned, at whose beauty we've never marveled, and to one another as unique once-in-a-universe-happening human beings.

It's late but everything comes next.

four: *tumbling off the line of time*

What energy does it take for a teacher, a school, a professor, a profession, a human being to resist a life view that constantly erodes one's sense of self, puts a person perhaps in constant rebellion and stress and in the end perhaps no choice but to comply or to leave a place? The stress of forcing ourselves to comply, of forcing children to comply, might in the end become too much. Small rebellions go unnoticed and perhaps make no difference at all, but on the other hand to be constantly committing these acts of violence also takes its toll, slowly, on the teacher's spirit. In what ways might Catherine Keller's (1996) call to projects of counter-apocalyptic thought be taken up towards a form of hermeneutic, deconstructive teaching with a movement into the future that is firmly grounded in our *here* and *now,* to "avoid the closure of the world" (p. 19)? Might we, through this project, summon up the courage to speak about what is going on, about children's lives, about possible futures we are facing and forcing as a human species?

A question might be asked here, about the possibilities of resistance, and to that question I would say that I do not know and we can never be sure. Jean-Luc Nancy (2003) writes, "It isn't a question, therefore, of giving up the struggle, but of determining in what name we carry it on, in what name we desire the continued existence of beings" (p. 20). To this, the answer perhaps is that the struggle is carried on in the name of life itself, no matter how small the actions seem. We struggle in this entanglement to create space and time. Here and there, are countless (unrecognized and unmeasureable) small resistances and counter movements organically arising as people's spirits rebel and cry out against injustice. People reach out, in neighbourhoods or across the world, in love and compassion. These matter and perhaps in the 'end' will make all the difference in the world. This is tiring work, we do not often see the results ('the Ends') but rather rely on faith and vision, persistence and courage to create the middle space, the timeful space, now. And ultimately, we might find comfort in knowing that there is always, until life is over, a deconstructive movement at work that cannot be stopped through human efforts. It is not all up to us. Life intervenes and interrupts human ideas and cultures, jolts identities, and causes always again a contemplation of life's purposes.

A place to begin untangling this knotted line of time might be with a conscious reorientation of our being (identity?) to time and place by reminding ourselves as often as possible that it is just one imaginary amongst many possible and that "Time as we habitually perceive it – as a linear continuity of moments with each one separate from and following the next – is illusory" (Thurman, 2004, p. 187). Focusing attention away from the strains of economic time and towards both the moment by moment time of our days and the deep time in which all of our lives unfold might create a bracketed space large enough for us to not teach as if life continues forever but rather as if life is infinitely precious, finite, and unpredictable, in this moment and tomorrow. While small resistances and actions might prove to never be 'enough,' to nevertheless have faith in small changes, remembering that these relationships in the present matter, to have joy, to ease suffering for other beings, to find peace inside even while there is war without. Catherine Keller (1996) suggests that developing "an ontology of time, hugging close to the nuance of the moment, seems to offer some saving space. Moment-to-moment we might just evade the grand narratives of dread, hope, and closures" (p. 85). In educational practice, this might mean developing a day to day awareness and resistance to the ways we shorten time in our practices, in the organization of our days, in what we ask children to do; segmenting, fragmenting, disorienting, and casting all hopes and purposes into the future is a great distraction from the nuances of the moment. No wonder the children are restless. There is no settling in the present, no acknowledgement of this place and everything is based on a fantasy, on projections, on imagined horizons where we can never be, will never be.

Might it be possible to recover (even for a moment each day) a sense of the earth as home, that cosmic sensibility, to counter our separateness, our loneliness, and rather to meditate on and nurture a sense of our connectedness, a sense of ecological time and place, that is, a more relational sensibility? The paradoxes of thinking personal and relational time together with cosmological and geological time might yet bring the human species to a different ethical place. We are, after all, animals, and part of the great complexity of life, and dependent after all on the limits of this finite planet. A focus on learning to live in time might also mean learning to live in place. On remembering where we are now which is not an imaginary place and time in the future separate from where we are today and now. Always dissatisfied with our lives in this place and looking to the future (that never comes) for deliverance is a way of being that is disconnected and without context. Wendell Berry (2000) explores the idea of "propriety" as a guiding ethic, writing of the links between modern mechanistic science, language, place and professionalism:

> All of the disciplines are increasingly identifiable as professionalisms, which are increasingly conformable to the aims and standards of industrialism. All of the disciplines are failing the test of propriety because they are failing the test of locality. The professionals of the disciplines don't care where they are. Though they are inescapably in context, they assume or pretend that they think and work without context. (pp. 14-15)

Propriety he defines as taking care of and knowing the place in which one lives, learns and works. Having had the experience to visit schools across the country in many different cultural and socioeconomic communities, what strikes me is the *sameness*, a distinct absence of contextual place and location, that is, signs to see 'where' the school is in 'real' time and place. Economic time and space, on the other hand, is visible everywhere. Paying attention to place, to context, might lead to difference and diversity in practices and structures in schools, locally opening ways for a conscious rejection of capitalist time based on speed and efficiency, enable us to stop hurrying children, to (un)know them, to let more relational rhythms, more time-full, shape diverse classroom and school communities.

Constantly bombarded by the voice of the market creating ever more desire and need in our hearts, listening with more focused care to the many 'other' voices speaking from the margins and depths, from spiritual places, cultural places, suffering places might be another way to disrupt and untangle this time that binds us. Catherine Keller (1996) suggests that it is from the intersection of various social movements – "feminist, liberative, ecological, anti-racist" – that "the contours of a new temporality" (p. 123) are forming. Purposeful attention to such other frames of thought might give us courage through reorienting us, giving other words for naming what is happening and for describing and imagining our days together. Shortly before his death, Paul Shepard (1999) expressed his wish that the disciplines of ecology and feminism might together be able to disrupt the violence and lies of the progress myth. He was hopeful that human myths were shifting towards more inclusion of "the others":

> Of the three great paradigms of the cosmos – hierarchy, mechanism, and organism – we have perhaps moved slightly toward the organism in the last decade. But that tentative advance is made on this cultural ice, for the maternal or feminine shape of the ecological vision is foreign to Western presuppositions. The patriarchal view has a vested interest in chaos, meaninglessness, in dread and fear, in linear connections between depths and heights, in distinct levels, in maintaining apartment. (Shepard, 1999, p. 173)

This is a very great challenge for teachers because of the ways that the individual(ity) is stressed in the contemporary education structures as a *value*. The ecological vision is foreign to us. Although we might speak of it, enacting it in any palpable way is nearly impossible. What Paul Shepard called "apartment" is highly valued. Even in very young children, I already have seen them not wanting to 'work together' as they feel that being with or near a certain person brings them 'down' whether socially or academically. How difficult it is to create an environment in my classroom (or in a university!) of welcoming hospitality, that embraces diversity and many kinds of different, weaknesses and strengths, without creating systems of linear power and dominance.

"you are the Bow River"

Jorge Luis Borges (Mansfield, 2003) wrote: "*Time is a substance that I am made of. Time is a river which sweeps me along, but I am the river; it is a tiger that devours me, but I am the tiger; it is a fire that consumes me, but I am the fire.*"

We are time.

Life – *life* - cycles through our bodies and memories. Our ancestor's genes in our bodies. The earth in our bodies. These bodies which, *in time*, become earth again. The process of being alive is shared in radical and unseen ways, easy to forget during the distracting days at school in that space so out of time. To remember children's bodies, to remember my body, to remember *other* bodies alive on earth now, is so very difficult as the time-governed segmented work piles up. Yet, how great might be the cost of forgetting?

Imagining that we are time, consuming while being consumed, swept along while being the river, directs deconstructive energies towards that powerful human identity construction that places humans at the top of life's pyramid, the very pinnacle of creation.[11] Envisioning the human species as organically intermingled, just one of the many creaturely lives through time who share (and have shared for billions of years) this planet's ancient and new, filthy and fresh breath and water, this planet's life that is so dependent on gravity cycles of the moon, on energy from the sun, on the planet's own recycling processes. Sandra Steingraber (2006), an ecologist and mother, struggles with how she might tell her own children that although they love tuna, they can only eat tuna fish sandwiches once a month because of the fishes' mercury saturated flesh. Reflecting on her own children's lives, she describes them ecologically:

> … their growing bodies are entirely made up of rearranged molecules of air, food, and water. Our children are the jet stream, the global food

> web, and the water cycle. Their lungs absorb oxygen provided them by oceans of plankton and valleys of rainforests. Rainwater flows through their capillaries. Egg yolks, green beans, and peanut butter becomes their heart muscles, nerve fibers, and fingernails. (p. 108).

As I read her words I think of those children in my class, who were marveling at the miracle of the seeds of the fruit, growing again to become more life, cycling life and energy around over and over, using the sun and soil's energy to feed the lives of others. Even as they had this wondrous insight, I was also torn, like Sandra Steingraber, by what lurked in the background of their desires. They were *in love* with this organic and natural cycle. I did not want them to know about huge corporate farms, genetically altered seeds and produce, and the massive amounts of fertilizer and pesticides used on the fields. I could not find a good way to tell an eight year old this story, any more than Sandra Steingraber could explain the tuna problem to her own children. The corporate advertising jingle *"There's a little McDonald's in everyone"* echoes an ecological truth that might be literally un-faceable most days, a truth that cannot be easily spoken in our entangled lives because to live free of it is quite nearly impossible even if one does not eat at McDonald's. Like all historical stories, the mercury in the tuna arrives in our lives as a message from the past, coming from a time before the children in this classroom were even conceived, and yet organically connecting all of us into that past and to the body of the earth.

And yet, there might be other messages and connections to hear, from further back in time, folded into the origins of life on earth. While we spend so much time focused on the future, where we have not yet been, which cannot yet be known, how much time do we spend meditating on the deep geological past and its relational meanings for our lives and learning? At a teacher workshop focused on ways to address the *Rocks and Minerals* strand of the Science curriculum with young children, the paleontologist who was our teacher for the day, broke abruptly from demonstrating how to identify rocks, laughing and saying not even geologists could identify all those rocks and it wasn't really something that mattered at all and that we should not stress about trying to teach children that. [12] What was important, he urged, was to consider *the time* of these children's lives. To consider that they will live in a future fossil fuel-less world, or at the very least in a fossil fuel expensive world. What would be the meaning of that? His voice grew more passionate. How important was this prescribed 'unit' about rocks if we could not figure out how to interpret it in such a way as to understand with children how profoundly our human living and *life style* depends on the earth and at what great cost this way of living comes. The question of human futures that do not involve more destruction and greater suffering of any life on the planet was the only serious and worthwhile question to take up with children in schools, he said, *the only question that matters anymore*. He urged us to think about how we would create a place where children might learn that the calcium and phosphate in our bones and teeth has been shared with so many other organisms through millions of years, to understand that we are only borrowing them for our own time, until the time our bones go back to the earth. With each word, his speech became more intense and moving. He seemed close to despair. He finished speaking: *You are the Bow River. Be careful with it.*

If we imagine ourselves as special, above or beyond nature, this idea clashes with our image of ourselves as a species. If we think that technology will save us in the future from the problems we create today, thinking about these questions can be avoided. And yet in our own time, this powerful connection between body, breath, earth, blood, water is now revealing itself in the collapse of ecosystems, in extreme weather patterns devastating coastal regions on both the western and eastern coasts of North America, the Atlantic coast of Europe, or drought creating vast expanses of ever growing desert across the African continent. The worry in the air is growing to palpable feeling. Could it be that that a consciousness is shifting, growing, a deep spiritual remembrance that our connected bodies are in the same cycles as plants, as bears hibernating, even to the mysterious time of the women menstruating and conceiving to the time-full cycles of the universe. Born and dying together, we emerged out of natural cycles. Although we may wish for it, we can't stop our decay, for our bodies do not belong in clock time. It is only when these industrial systems we have created begin to fail us that we remember our dependence on the temporary structures we have created and how fragile and interconnected their foundations are.

The failure of power grids in the United States and Canada, due to weather or human factors, lead to long days of power blackouts. People die in the heat and in the cold. It screeches into a social emergency and personal helplessness. Barbara Adam (2004) comments, "Today, the colonization of the night and seasons has become mundane, taken for granted, to be recognized in the enormity of its achievement only when it breaks down: when the supply of gas and electricity fails, when darkness, cold and heat reminds us of the 'natural condition'" (p. 138).

This natural condition is, in the end, on the ground and in the air, in the depths and heights, in the past and in the future, that which cannot be overcome no matter the futuristic hopes and technologies. Given that these contexts and timings which erase the present also erase finitude, would coming to live in a new temporality(s) then also mean coming to terms with our human 'finitude,' implying a generosity and a sensitivity that are often missing under capitalist educational relations (or *no relations*)? Jean-Luc Nancy (2003) says "the here-and-now *is* finitude" and he suggests that to steal someone's here (now) time is "evil" (p. 18). Holding ourselves present to the present, exposing ourselves to the "frame of finite relations" (Keller 1996, p. 134) might just create a different way of being: teaching as meditative discernment – deep attention, in the context of the natural condition, to all these moment to moment subtle and ethical acts and decisions, made at the edges of our knowing, at the doubtful edges of our certainty about life, and at the edge of our lived time together. An attentiveness to this frame of finite relations, might provoke feelings of life's transcendence, of our own genes and molecules flowing into the universe. In this attentiveness, that is slowing down and staying awake, our minds can make new connections and new meanings. There is a remarkable scene in Stephen Baxter's (2002) novel *Evolution* where Mother (our common human ancestor in the story) become conscious. Her mind opens. She begins to discern patterns and connections everywhere. She draws pictures and patterns of her new knowing on rocks, in the sand, on her skin. Other people start to learn from and copy her. Human consciousness, language, expression, and community marvelously and precariously begin to unfold. It might have happened this way. It just might have happened this way, in a community with the expressions of just one person seeing life differently and therefore living life differently. In an interconnected world, it is not possible to know what ideas will spread, capture the imaginations of others, be written on the stones, unfold the story into the future.

In our own age of futuristic hopes it seems we fail so much of the time, at least on the fast skimming surface of our living, to discern patterns and connections, especially those to do with the presentness of finitude. Death. Endings. Extreme categorization keeps us from focusing. Mine. Me. You. Them. Us. Over there. Over here. Subjects in the curriculum. Rocks. Minerals. Disciplines at the university. Grades in school. Everything is compartmentalized, making life seem neat and tidy, and full of borders and frames. Baxter's novel reminded me that a challenge for me as a teacher is to summon both energy and courage to consciously see and imagine the connections, in my own life, in my teaching, in our classroom. To remember that individual moments in the classroom are connected to every other moment of time and that it therefore matters what we do and what we don't do, how we spend our time and don't spend our time, what we talk about and don't talk about.

In any case, these topics can't be avoided in the end. Life is here, in this place and every place, in this time and every time. The children in my class talk about *life* all the time. Recognizing when something is a cycle, a relationship, seems to thrill them in some uncanny way. They ask questions about nature, about death, about birth, about reproduction, about war and about peace. They love thinking and experiencing new ideas in their minds, and they love expressing and sharing them with others. But am I, as their distracted teacher, awake and attending enough to hear them? To understand that children's ideas and connections just might be akin to this evolutionary Mother painting her insights on the rocks? Their insights appear just for a moment, brief flashes in the middle of hurrying and joking, playing and running. Moments of potential, each one. The word 'evolution' means unfolding, unrolling, or opening out. First used early in the 17th century, it originally meant the unrolling of a book, or scroll. And so, although the 19th century evolutionary biologists interpreted evolution as progress, competition, and survival of the fittest, the origins of the word itself might open other interpretive possibilities to us. In considering the ways and places, that is everywhere, where life evolves, unfolds outside of human concern and control a more ecological world view might plant its seeds and grow a different story about life in the future, opening out in difference, in dialogue, in movement, rooted in the intimacies of our relationships in time and place and not displaced into a future that is already known and read ahead of time.

on time as unfolding relational ecology

Ideas of wholeness and relatedness seem to have lately become almost cliché, even commodified and subsumed into a new-age middle class feelgoodness, to be sold as books, magazines, tapes, yoga classes, relaxation fountains and Buddha statues. But it might be a mistake to dismiss the yearning behind this impulse as just another kind of consumerism, and rather important perhaps to interpret it as a recognition, a longing, for more depth and wisdom in our shallow and hurrying lives. That it appears, on the surface at least, as 'buying time' (as in a yoga class or retreat), just another fleeting economic solution to heal a deep and overwhelming fatigue, once again reveals the immeasurable and complex global tangle of this economic time.

In schools, attending to ideas of evolution and relatedness might begin with attempting once again and each day to purposefully resist constructions of the 'self' as an individual. It might mean finding ways to explore our 'selves' as ecological, related through time and place, on finding ways to remember that our human identities, whether individual or communal, depend on interdependent contexts. Always. To remember that *we are the Bow River*, that our 'self' is only and always a relative self, in time, with other relative selves. In this sense, our own wellness and the world's wellness are not in any way separable, but everywhere and always mutually dependent. "Time," writes Catherine Keller (1996), "is not an endurance but a relation" (p. 132). Emmanuel Levinas (1985) wrote of the relation with the Other: "its element is time; as if time were transcendence, the opening par excellence onto the Other and onto the other" (p. 56). Although at the time of his writing, during the time of his own life, Levinas did not speak of the "other" as *other than human*, I interpret his words *in this time* to mean opening onto *all* relations, not only with another human but into but relations with a rock, a whale, a spider, a drop of water that situates the element of our relationships and our work in the here and now, in this time and this place.

This presents a difficult spiritual and sociological challenge, requiring mindfulness and consciousness about the religious, social and economic forces that are at work. Recognizing the ways that my work as a teacher might be attempting to move against the flow of these forces might help interpret and understand the difficulties of it. Andy Fisher (2002) reminds us to consider the ways that success in our society is measured on the ways one serves the growth of capital and therefore that "our society is not structured to care for life, to attend carefully to relationships and honor the growth or sacred unfolding of things" (p. 161). His choice of the word "unfolding" here is useful to this thinking, to the evolution of the future. To consciously and purposefully consider time as a sacred unfolding, as the opening onto relationships, not as a line or an endurance, might be a way of even momentarily stepping into a different life flow, energized by a different sensibility and a different timing than we usually inhabit, opening into a more sacred place and time that cares for life.

The timing emerging from scientific work in the fields of evolution, geology, and physics might also point us away from those scientific visions of machines, clockwork and time-lined progress. Brian Goodwin (2000) writes "But what has been revealed by science itself is that much, probably most, of nature cannot be predicted and controlled. Nature is full of deterministic chaos and emergent properties" (p. 32). Science is revealing, he writes, "a picture of nature living on the edge of chaos, which is where creativity arises. We have reached the limits on the use of scientific knowledge for the control of nature through predictive technology…. We have reached the limits of the science of quantities, prediction and control" (p. 32). Even so-called non-living nature, we are learning, unfolds in this way. Ilya Prigogine, the 20th century Nobel laureate who studied living and non-living flowing structures such as water, sand, wind and lava, discovered that they were existing and unfolding in a flow and ecological exchange, and not like a machine or in a singular predictable direction. Definitely *not* like a clock.

> Newton's linear, time-reversible world is a world without surprises, a machine reality that could be taken to bits and then rebuilt again. In contrast to this, the world of dissipative structures is unpredictable, non-linear, flowing, irreversible connectedness, a world of broken symmetry and timefullness. While the heat transfer in Newtonian systems of exchange produces pollution and waste, the energy transfer in dissipative structures becomes a source of order, creativity and growth" (Adam, 2004, p.33)

Such emergent ideas from science might give those of us who work in schools hints about why we may be feeling so squeezed and exhausted, our hearts torn, confused and lonely. While it may be that schools are both externally and internally constructed to march to clock time, to try to be predictable, to measure, to control the future, to grasp hold of language and knowledge and meaning, they will always be human communities of diverse living beings, embedded in always unfolding natural, cultural and social communities. Creative energy comes not out of a machine, but ecologically out of all the relationships, flowing out of our relations and decisions now. *We are the river.* To understand a classroom or school space and time as evolutionary, unfolding, dissipative, flowing, and therefore only to be grounded ecologically and ethically brings us into a radical present moment. All other ways have no ground.

Ecological and relational time is 'now' time. It is present. Current. Stephen Jay Gould (1999b) spoke about the need to consciously develop an "ecological ethics," one which would not look to other planets or to the future, but rather one that concerns "itself with the quality of our life and the life of other species in the here and now" (p. 33). He said this might work to "cut our human pretensions down to size" (p. 26). We realize that we are only part of all this unfolding. In the here and now. Thus, to *unknow the future* is to radically open it to its present ethical relations. Living ethically 'now' becomes a way of understanding that the future is already now present in this moment through the decisions we make, spiraling out ecologically, relationally, through time and space, through the infinite web of relations that is the matrix of life in the universe. This is not the same thing as living in the 'future' now, already, as we do through our language in education and economics, that way of being which wipes out children's present and our own, tripping over our feet in a hurry to get ahead of ourselves.

The effect of grounding ourselves more fully *in time and in place* might be that we feel happy! "Happiness occurs when people can give the whole of themselves to the moment being lived, when being and becoming are the same thing" (John Berger, in Finn, 1992, p. 111). What, in this life, in this moment *in time*, is worth giving the whole of ourselves to? What if a primary curricular task became to cultivate that sense of the earth as our home, to "build up a sense for the centrality of the human-nature relationship in human existence, thereby disclosing this relationship as an ultimate concern" (Fisher, 2002, p. 117). In this timing, the ultimate concern would cease being achievement test results, or school ratings, the profits of a corporation, or the GDP of a nation. This would involve endeavoring to continue to initiate conversations in education towards re-orienting our relationships, unveiling these relationships as the ground of our being, the ground of our happiness, as the groundedness of time. This does not mean, however, orienting our time and efforts towards saving the whales or the panda bears or the rainforest or the whole planet, and neither is it about saving ourselves, but about restoring time-full and spacious justice to our relationships. In this timing, we do this work not because the whales and the trees are beautiful to *us*, but because at some sublime level we might realize that our identity as living beings on this planet depends on the complexities and unfoldings of life continuing. To repeat Catherine Keller (2000):

> With these beings who matter, in relation to whose infinite need and newness my finitude is called to its capacity. *Finitum capax infiniti.* Only with them do I matter. And today, knowing of our hitherto undreamed of capacity to commit apocalypse upon all creatures, reading the omens of nonhuman nature not as cues for seduction but as cries of beauty in protest, we add – with the lilies of the field and the birds of the air. (p. 93)

The words *heal* and *whole* share the same root (*haelan* or *hal* – from Germanic, COD). Thus, a purposeful (and non-commodified) reorientation towards healing relations with the world is also towards healing relations with each other, other humans, and also towards ourselves. We are related through a process: that is life. All of us together, in our connections, and reconnections, are in this unfolding movement in and through time. And earthy embodiment in the time of breath, water and stone. As we unlearn the time of the clock, let go of the time of the future, tumble off the line of time, we get a sense of the sacredness of life, of the movement of time. Poet Don Domanski (2002) commented in an interview that when we stop viewing life from a linear perspective, we might

> see things as coming from a common rising out of nothingness. All life, all matter rising up at once in numberless forms and all of it intimately connected and dependent.... Without all the rest, you and I wouldn't be here. You didn't just get here via your mother, but also by way of the rest of humanity and by way of the wolf, the maggot, ears of corn, etc. All the birth through billions of years of incalculable plants and animals got you here. (p. 247)

Such deconstructive and untangling work is difficult because opening to relationships, placing the nature-human relationship at the centre of concern, questioning visions of progress and the future threatens great powers and indeed might undo the security we sometimes feel in our own personal lives and work. It might provoke unintended and violent responses, in ourselves and in others. Being aware and mindful of the psychological and spiritual threats these questions pose for our identities is critical. This might be why it has been easier for the appeal of ecological and holistic ideas to be taken lightly, commodified into yoga classes and magazines and fountains. A genuine facing of the truths and possibilities of our human existence, might collapse pretensions and leave us grasping for meaning, for "Otherness must remain outside ourselves. Margins, prenumbral similarity, and conceptual umbilicals trigger the schizoid alarm at the heart of the modern Western personality. There is almost no limit to what we will do to avoid that intrusion of otherness into the citadel of prideful identity – including, if need be, exterminating the Others" (Shepard, 1999, p. 175).

If the time of the market is the time of separateness, of individuals free to supposedly do what they will, it is then a lonely place and a lonely time, governed by clocks, ticking away the future, consuming the life of the earth, exterminating the Others. If schools belong in this industrial time, we might forever be able to feel that someone else is responsible, making us 'do it,' whatever 'it' is. But with the idea of relational and ecological time arrives a very radical and difficult kind of accountability. Is it possible to seize back this word from the political and economic discourses in a way which would take back the world and time, breath into it a new meaning, so that when we use it in education it *means* something else? Accountability deconstructed by infinite obligation implies an obligation to life, all life, through time, to all future beings, not, anymore, to the market or the government or the school board as abstract bodies existing in no time. Rather, it is an accountability to real bodies in real time, to the children in our classroom, to their families, to all the connections that spiral out from this place called school.

Jean-Luc Nancy (2003) writes that "Nothing is stranger to our modern *ethos* than obligation" (p. 134). The obligation that comes with relational time is heavy. It might burden us in a time we desire to live on the scarce surface of life, consuming and hoarding what is left. Terry Tempest Williams (2002) says that accountability arrives with relationships, in taking time, in not being so busy. When we are busy, she writes, "We live on surfaces. We don't have time for connections…. But if we spend time with people, listen, see them for who they are, relationships develop, accountability arrives and stereotypes shatter. Power in the dark sense disappears in favor of cooperation. We face each other as human beings" (p. 319).

What might the consequences of schools' continued participation in market time? What does it mean for us to teach children to be competitive individuals in a tough world? Many of them will see through our lies, as we might have with our own teachers. They will see that we are not genuine. They will not listen to us since under this system a mutual relationship with them is impossible. What kind of breakdown is this when young people cannot trust the adults to tell the truth? Here lies the greatest challenge. To find those possibilities to keep looking for ways that our living, our connectedness, is denied by these times we inhabit, even though this might be terrifying and painful, and to find ways to tell the truth in ways that do not orient our work in schools away from suffering (i.e. towards future happiness and progress), and not towards a fantasy impossible future world that never arrives. When we slow down, focus, face each other as human beings (and other species) we find that we are in the midst of the 'real' world. We see this world as it really is now and not as we desire it to be.

Even in this time of closure, we have some choices about our conduct and that does make a difference for the unfolding future, that is the yet open future, not a predetermined and predictable future, by not closing it down before it starts. Time might not be a line, but neither is it reversible. "(T)hat difference which I make in the future of my world, my relationships, cannot be reversed. Our causal – ethical – responsibility is in this sense nonnegotiable. My effects on the world can be altered, negotiated, diminished or augmented, but what I become and do here and now cannot be retroactively annihilated" (Catherine Keller, 1990, p. 108). And so this obligation to the world and life is ecological, very serious, very deep, and what is at stake now is the human species' relationship(s) with all life on earth. Such an understanding of time is in tension with economic time. The time of obligation. Relational time. Ecological time. Grounded time with its feet in the earth. The time that moves with us and moves with the whales in the Bay of Fundy, with the child and with all living creatures who have ever been. The time of Chernobyl and the time of a flower's growing, the time of a sun and the time of a child sitting frustrated in a hard chair in school and watching the clock tick oh so slowly. The time that is very old and very deep, grinding down mountains and making sand. In relationship to all these many times, our human lives are so short, so fragile, so lovely, so mortal, and supported by more cycles, beginnings, endings, chances, relationships than can ever be traced. Experiences with children are teaching me that they already know, in their hearts, minds and bodies, about time. About life. About death. They bring it up all the time in our classroom. It is already embodied experience and integrated knowledge for them. A little sad question prods at my spirit: *When are they educated out of this? Will it be this year in* our *classroom?*

* * *

One day during a conversation a child suddenly exclaims: “Everything is connected! It’s all a flow of relationships!” With those words, the knotted line suddenly comes loose, slips away. A stream of words and thoughts that cannot be stopped gushes forth. Many, many words, spill freely into our classroom as they grasp for meaning, to clarify their big thoughts. “It’s like chains,” says one, “chains that are all connected and linked together, you can follow all the links and see what they mean.” “Consequences,” says another, “anything we do or say has consequences, so we should be careful in our lives because we don’t know the future yet.”

Sometime later, on a fieldtrip, a child excitedly shows me a picture he has drawn in his sketch journal.

“I get it!” he says.

A vision has suddenly grown clear in his mind. He has drawn a cycle of life that includes human beings.

Tumbling off the line of time, in this child’s circle we are recycled.

…. the river, the rock, the air, the tree, the wind….

3

Remembering Chernobyl, Remembering the Future

Chernobyl – we won't have another world now. At first, it tore the ground from under our feet, and it flung pain at us for real, but now we realize that there won't be another world, and there's nowhere to turn to.

—Sergei Vasilyevich Sobolev,
Deputy Head of the Executive
Committee of the Shield of
Chernobyl Association
(Alexievich, 2005, p.142)

terra mater: the story of milk

Once upon a time, and as it still does today, the face of the sun shone towards the earth. Its light and energy warmed the planet, evaporated water and cycled it through air currents. The water fell back down in new places as rain, filling lakes and rivers and nourishing the earth. Basking in the warmth, plants grew, consuming the energy of the sun and the energy of the soil, releasing the breath of oxygen that nourished all other life. The plants died and decayed and made more soil and more plants. Animals ate the grass. Humans milked the animals. Their bodies grew strong from the proteins and vitamins. They felt good. The earth journeyed around the sun many thousands of times. The humans were smart and creative. They built many things to help them in their lives, to ease their labour, and to show each other how powerful they had become. One day, in one small place on this earth, a few men made a mistake. The ground shook with terrifying explosions and an uncontrollable fire began to burn. Like a monster exhaling, an enormous cloud rose up from that place and joined with the water molecules in the sky. The cloud moved in the winds over nearby places and rained down invisible poisons on the people, and creatures, and plants, and soil. There was no place to hide. The plants continued to soak up the energy of the sun and the energy of the soil like they always had. The people and animals ate the plants. The people ate the meat. The children drank the milk. The children became very sick. There was terrible suffering. The people were afraid now of the things they had built. They didn't expect this to happen. No one had prepared them for it. They didn't know what to do. They couldn't kill the monster, so they put it in a concrete coffin. They didn't want to look at it. They only had time for their own sorrows now.

one: *Chernobyl planet, nuclear humans*

On April 26, 1986, one of the reactor cores exploded at the Chernobyl nuclear power generating facility in Ukraine. Radioactive waste and dust spewed into the atmosphere and spread in the following weeks across much of Europe and around the world. This accidental and unexpected moment precipated the most serious human-made ecological disaster anywhere on the planet up to this time, and initiated our human entry as a species, and the earth's entry as a habitable planet, into what Joanna Macy (2000) names "a harsh, momentous time" (p. 277). In a speech in the year 2001 to the United Nations General Assembly, Kofi Annan (n.d.) said that "Chernobyl is a word we would all like to erase from our memory. It [opened] a Pandora's box of invisible enemies and nameless anxieties in people's minds, but which most of us probably now think of as safely relegated to the past."

He continued his address by meditating on the consequences of forgetfulness, in particular in relation to Chernobyl, which Kofi Annan reminded his audience is not in the past for the millions of people who continue to suffer from the affects of the accident and that "the legacy of Chernobyl will be with us, and with our descendants, for generations to come" (Annan, 2001).

This chapter takes up the question of what it might mean to *remember* this intergenerational and future-bound legacy of Chernobyl, as this most serious and yet mostly unseen environmental catastrophe, in relation to the work of teaching. When I mentioned to friends and colleagues the focus of this section, many of them reacted with confusion, or surprise: *Why Chernobyl? What does it have to do with education? Why are you writing about that?* Many younger teaching colleagues had never heard of the Chernobyl accident. Indeed, these reactions made Chernobyl seem not only long ago and far away, but also somehow inaccessible, remote, and perhaps not even very important topic in these days of urgent talk of climate change. I began this writing, intending to invoke Chernobyl as a symbol, or symptom, of the powers of forgetfulness and what that might mean for teaching work. I had been noticing over many years the brief news stories about Chernobyl every so often appearing in the back pages of the newspaper and became interested in the ways that the unfolding history of Chernobyl *seemed* so shocking, terrifying and globally present in these stories and yet how little it is publicly discussed. Questions arose: What might happen if a *memory* of Chernobyl were invoked in a curriculum and teaching/learning space? Would it change the ways I thought about my work? Would it change the ways I enacted my work?

As I collected information, studied, meditated and attempted to write into this topic, I began to understand that Chernobyl is *not* a symbol and that my beginning positioning was perhaps useful but maligned. Chernobyl is *Real* and present, present-tense and not in the past, and that it is also *the future Real*. The attempt to philosophically think Chernobyl and my teaching work into a shared space became the most difficult project I have ever attempted. It seemed impossible. If Chernobyl is *real*, then what does this say about teaching and learning and classrooms? That teaching is some kind of false activity full of lies and mirrors, unable to look at the world? Indeed, it seems that those colleagues and friends were ahead of me in articulating their confusion about this topic's relation to teaching. Perhaps they even had a premonition about this being dangerous territory for a teacher to tread. It became, in attempting this writing and thought project, not so much about forgetting Chernobyl, but rather a condition of not knowing what to do with it, how to think about it or comprehend it within the material and spiritual scope of living in any meaningful and sense-making way. If looking at the face of Chernobyl shatters the surface of the meanings of my work as a teacher into unmendable and irretrievable fragments, what then will be left?

Even as these thoughts and questions came to mind, I became increasingly conscious of those members of the human (and other) species who experienced Chernobyl not at a distance, but up close and personal, who continue to experience the accident as a life and meaning-shattering event in their living present. They have no leisure to consider this in an arm-chaired academic way. Suddenly, opening the classroom door to Chernobyl seemed possibly too terrible, too terrifying, too confusing, but the door was jammed and would not close. Remembering Chernobyl called to mind and presence these people's ongoing past/present/future suffering and the ways this has been subsumed and erased both by political events in the world and the former Soviet Union, and also by a continued faith in 'progress' which relegates their suffering to a necessary, if unfortunate, cost of doing business and development in the 'globalized' world. As such, it is in the story of Chernobyl that a critical part of the history of industrial and scientific human beings is revealed, especially the 20th century West, and one that often resides deep in shadowy and unconscious territories of day-to-day living. Chernobyl, if its name is allowed to be a representative of nuclear technologies, is not some *thing* that is isolated or in the past, but rather has intimate and often secret links to war, to the global economy(s), to geopolitical stresses, to human hunger, to fears of 'terrorism', and to climate change. What does *this* mean for the work of teaching?

The accident itself was a *planetary event*, perhaps the ultimate confirmation that all life shares one small interconnected and inseparable space. Grigori Medvedev (1993), a former Soviet nuclear scientist who has written extensively about the accident and Soviet nuclear history wrote, "We now have a Chernobyl planet" (p. 110). In one singular moment, the local became radically global. Rather than an act of war and violence from an outside *Other*, the human-constructed world exploded from *within*. There was no terror attack, no dirty bomb, no enemy. The history of technology and industrial revolutions blew up in the human face, literally. On a Chernobyl planet, *here* is *everywhere* now. Upstream or downstream, wind and rain, life-cycles and bodies, make no distinctions between borders however strong, even when named Iron Curtains. The radiation from the accident was measurable everywhere on earth, but in places near Chernobyl, *life* became instantly impossible. It caused immeasurable immediate and long-term human and (other) creaturely suffering, laid waste to vast amounts of previously fertile land, and has cost the local and international communities hundreds of billions of dollars so far. Millions of people were affected, and hundreds of thousands became environmentally 'displaced persons' (Chernobyl refugees?).

Chernobyl specifically, and nuclear technologies in general, brings abruptly a confrontation with different perspectives of time and awakens a new human identity (perhaps first awakened with the dropping of atomic bombs on Japan 40 years before the Chernobyl accident). As a species 'we' (that is most of 'us', no matter where on the planet we live and through no choice of our own) have become *nuclear human beings*, living in a common ecological nuclear time-zone that will continue for thousands of generations into the future. Still, more than 20 years after the accident, it is clear across the nuclear literature that no one knows what to do about Chernobyl, leaving it a crisis that extends into unknown future time(s). A vision emerges of the magnitude of future difficulties facing human and non-human descendents. This vision is in no way compatible with the progress vision of western modernity and its cheerful technological promises of fine futures. It seems entirely possible that the legacy of radioactive time might outlast the human species' lifeline. On the other hand, in the short term time, Chernobyl has been *good for business*. Many facets of the global economy, from medical and academic research to 'extreme' engineering have embraced Chernobyl's fallout. The implications of these are taken up later in this chapter. Chernobyl has woven a tangled web. The multi-national (American family-owned) engineering company Bechtel has been awarded a large engineering contract to assist in attempted protection and clean-up of the Chernobyl site which remains extremely hazardous and unpredictably volatile. This contract includes being a partner in the building of the new Shelter. A massive research industry has been generated in Europe and Russia, and as far away as the United States, around the effects of nuclear radiation on populations and ecology, as it has provided a living laboratory like no other. Even as I finished writing this, a one-year research grant of U.S.$5 million was 'awarded' by the U.S. Department of Energy to a team of researchers at the Research Triangle Institute, Duke University, the University of North Carolina, and the Research Centre for Radiation Medicine of Ukraine. A major purpose of the project is to study the effects of radiation on the up to 10,000 workers needed to complete the construction of the Shelter and thereby gain information that could be useful in a nuclear attack on the United States (LocalTechWire.com, 2007; RTI, 2007; Triangle Business Journal, 2007).

In the previous chapter some of the origins, enactments and meanings of some Western constructions of time, in particular progress-oriented future visions, were explored in relation to educational futuristic hopes and possibilities. It might be that the reality of a nuclear future (present) is amongst the absolute deconstructors of such futuristic dreams. In Chernobyl's presence, the progress future is already and forever disrupted, and the future(s) of the world is disclosed as a matter of intimate and urgent concern. Have any human cultures ever had to think about the future in such ways before? An almost mind-numbing paradox in thought emerges: the challenge of how to think a future that is not the mythical progress-filled future, yet a future that will bear into immeasurable time the consequences of these myths of consumption and growth that a relatively small group of human beings in the past few industrial centuries have perpetrated and lived out. Chernobyl is among the living and emergent consequence of these few humans deciding that in undertaking these nuclear projects the risk to the future was a risk worth taking. For me, as a child of the West, to be counted as among these humans might be felt as pain and confusion, even as I continue to enjoy the benefits and luxuries I have inherited.

To feel caught as a teacher in this process, in these systems, might be experienced as a profound, difficult and real philosophical and spiritual crisis. The challenge of thinking together time and the long-term future possibilities for life on earth emerges as a philosophical question for me individually as a teacher, for the work of education, for ethical questions of how the human species might live (or not live) together in time, in responsibility to future and emergent generations of planetary life. This seems a particularly great challenge in this time when teachers and administrators are being transformed into bureaucratic servants to the global economy, exhausted by this, and while the earth too, is laid waste and exhausted. Life becomes a resource to be managed. But this will always be a Chernobyl planet now and the progress future will not arrive in any ways it has been hoped for. Creaturely life slips into oblivion while I rush children into the future. Yet the sun will rise again for billions of years more. The existential threat is entirely our own.

two: *before and after Chernobyl*

a brief history of the Chernobyl accident

On April 26, 1986, at 1:23:58 a.m., while workers at the power plant were conducting tests on safety equipment, an explosion occurred and the roof of the unit four reactor was blown off. Soviet officials kept the accident secret from the rest of the world, not asking for assistance, while an uncontrollable and massive fire spewed tons of radioactive materials into the atmosphere. Three days later Swedish atomic instruments measured high levels of radioactivity at their own nuclear power plants and it became clear that an accident had occurred unreported somewhere nearby. When confronted, the Soviet government denied that there had been an accident. Eventually the extent of the accident became clear to other nations when the smoking reactors could be seen on satellite photos (Alexievich, 2005; Marples, 2001; IAEA, 2006). The fire in the reactor burnt for ten days, but it took only hours after the explosion for heavy contamination to affect the human and animal populations and ecologies of huge areas of Ukraine, Belarus, and Russia (Novak, 2000). Within two weeks, the radioactive cloud spread over much of Europe and Asia. By April 29, the radioactivity was measured in Germany, Poland, Austria and Romania, by April 30 in Switzerland and Italy, by May 2 in Japan, and by May 6 in Canada and the United States (Alexievich, 2005).

The immediate fear, particularly in Europe, was the contamination of the fresh food supply. Precautions and warnings were undertaken in many places, including not allowing domestic animals to graze outside and slaughtering reindeer herds in the northern countries. Now, 20 years later, although much of the nuclear materials have decayed, measurably high radiation persists in some forested and mountainous regions of Europe, contaminating animals (game), berries and mushrooms. Many restrictions remain in place across Western Europe and Scandinavia around animal diets (not allowing grazing in certain areas), public access to certain forests, restrictions around eating mushrooms, as well as restrictions on firewood for burning in homes and spreading of ash for fertilizer in gardens, fishing from some lakes, and alterations of hunting practices (IAEA, 2006). The International Atomic Energy Agency (ibid) admits that these restrictions may not be adhered to in Belarus, Russia and Ukraine although they are proving effective counter-measures in other parts of Europe. Produce and game entering farmer's markets in Moscow (approximately 670 km from Chernobyl) continue to be scanned by officials for radiation and confiscated from vendors (Wines, 2002).

Today, more than 5 million people continue to live in the area of Belarus, Ukraine and Russia that was contaminated by the accident. At the time of the accident in 1986, 400,000 people lived in the areas that are now designated as "strict radiation control" (IEAE, 2006, p. 8). In the spring and summer following the explosion, 116,000 people were evacuated from the "Exclusion Zone" to non-contaminated areas, and a further 220,000 people were relocated in subsequent years (IEAE, 2006, p. 9). While it is a small elite usually relatively far away from the site of power production who benefits most from nuclear technologies, it can be observed in this case that ways that indigenous people, women, children and poor villagers were disproportionately affected by the accident. It continues to be particularly devastating for the indigenous Sami people in the arctic regions of Finland, Norway, Russia and Sweden whose diet and culture depends on reindeer products, as there has been a "high transfer of radiocaesium in the pathway lichen-to-reindeer meat-to-humans" (IAEA, 2006, p. 23). Belarus, as a poor nation with no nuclear facilities of its own, was most affected with up to 20% of its land impacted by the radiation (Marples, 2001). 485 villages were evacuated, of which 70 were permanently buried to contain the radiation. One-fifth of the citizens of Belarus – that is 2.1 million people including 700,000 children – continue to live on contaminated land (Alexievich, 2005, p. 1). For them, there is literally nowhere to turn.

In the months following the explosion, with assistance and financial support from the international community, attempts were made to contain the reactor. Thousands of tons of materials were dropped from military helicopters to cool the radioactive materials inside and to stop another explosion from occurring. Eventually Reactor 4 was covered with concrete, a structure originally named the "sarcophagus," and which now has been re-named the "shelter." Within ten years, this shelter was cracking and fears were growing of another imminent and worse radioactive disaster for Europe if the structure were to collapse on the materials contained inside. Construction of a new Shelter are underway at the ever growing cost of U.S. $1.1 billion (discussed later in this chapter).

Eventually 600,000 workers were registered as emergency and recovery workers, called "liquidators" (IAEA, 2006[13]). There is much debate about the number of *deaths* directly related to the accident – anywhere from about 50 to hundreds of thousands. The well-documented victims include only the initial mortalities, which included *all* the firefighters and helicopter pilots who worked during those first days to put out the reactor blaze. Some of the medical staff who treated them also died in the following days from radiation exposure (Alexievich, 2005). As many as 12,000 of the "liquidators" had died by 2001 (Marples, 2001). There is no agreement in the literature about whether these mostly young men died as a direct result of Chernobyl or other causes facilitated by the collapse of the former Soviet Union including ill health, lack of health care resources, stress, poor nutrition and poverty. The number of future cancers and illnesses remain unknown and unpredictable and likely unmeasurable given the economic and social conditions of the former Soviet states.

While the small number of provable and measurable 'deaths' directly related to the accident seems to be often used to minimize the impact of Chernobyl, the extent of psychological, spiritual and economic suffering in the regions is just beginning to be comprehended and acknowledged. As well, the economic cost of the accident to the international community is undisputed and estimated so far in the hundreds of billions of dollars. Much of the burden has fallen to the three countries most affected. Coping with the impact of the disaster has placed an enormous burden on their national budgets. Ukraine continues to spend five to seven percent of its budget each year on Chernobyl related programs. The total cost to Belarus alone between 1991 and 2003 is estimated at more than U.S. $13 billion. The nation's spending on Chernobyl amounted to 22.3 percent of its national budget in 1991, decreasing to 6.1 percent in 2002 (IAEA, 2006, p. 31).

In what was known as the most fertile land in the former "breadbasket" of Europe, the "Exclusion Zone" around the Chernobyl plant will remain uninhabitable for many decades (EBRD, 2003). The Zone was originally about 2800 km^2, but has since been expanded to 4300 km^2 (WNO, 2006b). Outside the Zone, in Russia, Ukraine and Belarus, an additional 784,320 hectares of agricultural land has been indefinitely removed from service, and timber production stopped for 694,200 hectares of forest lands (IAEA, 2006, p. 32). These restrictions have crippled local economies and the livelihoods of countless individuals, families and communities. Poverty and unemployment grew in these areas and, together alongside the collapse of the Soviet Union communist economy, created severe and distressing situations for people whose lives were already difficult. The over 300,000 officially displaced people (termed "resettlers" by the IAEA) – literally environmental refugees – who lost everything had to be moved and settled elsewhere. All three countries made huge investments, constructing new housing, schools, and medical facilities for the evacuated. This included all the necessary infrastructure (roads, water, sewage, electricity, etc). Because of the risks involved in burning local wood and peat, which are the traditional sources of heat in the area, 8980 km of gas pipeline for cooking and heating were laid down to the new settlements (IAEA, 2006). The trauma of the accident and relocation continues to affect people who are experiencing anger, depression, unemployment and a feeling of loss of control over their lives. "Some older resettlers may never adjust" (p. 33), the IAEA report claims. One might wonder what comfort and assurance there is that the 'younger' resettlers will adjust, or that the next generations will not be similarly affected as there now seems no end in sight to their misery and suffering.

after Chernobyl: realizations, futures and educations

In the story of Chernobyl, in the sheer mind-staggering numbers (from people to animals, from hectares of land, to dollars), in the measurement of economic loss, in the "macabre battle" [14] over the number of people who 'died,' what seems an insanity rises to the surface revealing the extent of the economic disconnection from the life processes of the planet and the willingness to risk earthly futures for present financial gain for a few. While individuals and communities in the three affected countries, and the Sami people in northern European countries, suffer immeasurably in the aftermath of the accident, there are those who are continuing to gain enormous financial benefit from this accident, namely multi-national corporations involved in various parts of the reconstruction and clean-up. Ecological catastrophe is good for business. Yet, the true ecological, human, social, cultural and economic costs have not yet been finally calculated and will continue to be revealed in the future. The human and non-human communities of life remain confronted by a sleeping technological monster so incomprehensible as to be nearly mythical.

In attempting to find meaning in this facing, in *remembering*, terrifying and unanswerable questions about ontological and philosophical meanings in the work of teaching and communal lives as human beings on the planet might rise to the surface. It becomes difficult to pretend that all this has nothing to do with education's overwhelming focus on the future, and it becomes a question of what kind of 'future'(s) this might be. In commenting on the ways technologies like nuclear power confront us with ontological questions, particularly the past and present human quest for control over the planet and human destines, Barbara Adam (2004) writes: "What has slipped out of sight with the industrial way of life emerges from the shadow. We are once more confronted with questions about collective life and death, origin and destiny" (p. 147). Nuclear science has from the beginning been a technology bound up in war, in economics and in the massive requirements for electrical energy to drive the industrial world. As such, Chernobyl rises up and confronts us with the *question of the future*. It reveals the impossible and incalculable costs of an addiction to power and consumption. It represents that willingness to risk everything for short-term gain. It embodies the apocalyptic attitude towards the future of planetary life that Catherine Keller (1996) has so well described: indeed, throughout the literature on Chernobyl and nuclear power it is startlingly clear that the authors do not expect life to last long on this planet. It illustrates the ways the power industry is driven by big corporate money in the short-term, without long-term concern for women, children, the poor, the indigenous, and the non-human. It is literally a geopolitical/economic *power struggle* at the expense of the earth's futures. As global climate change suddenly becomes an emergency politically worth attending to, the possibility of many more nuclear power generators seems high, in the hopes for at least a short-term and so-called 'clean' energy solution to continue to fuel the voracious consumption and economic requirements of the (mostly western) world.

In this sense, Chernobyl might become both a symbol *and* reality of the ecological (including 'human') costs of placing economic growth and progress ahead of the terrestrial and time-bound needs and well-being of the diverse community of life. Mythologically, nuclear technologies seem to be neither here nor there, nowhere in time and place, while providing mass amounts of so-called cheap 'clean' energy. The Chernobyl explosion is a reminder that there is but one planet, and that nuclear power *is* here and there and everywhere through all future times and places. Although much of the 'official' literature about Chernobyl focuses on financial statistics and direct loss of life, it often fails to take into 'account' the meaning (and amount) of suffering and despair that has resulted.

Pedagogically, Chernobyl might again implicate and provoke questions about the meaning of teaching and learning in relation to the ongoing planetary plundering in the name of economic growth; that is, the meaning of teaching in a time of ecological collapse (or human hunger, or climate change). Is it going too far to raise the question of what it means to teach in the educational institutions of a culture gone mad? And another question occurs to me while considering the time of Chernobyl, and that is the meaning of being a nuclear human being. As a teacher I do not necessarily have to fail to take the meaning of suffering into 'account(ability)' in my work: by meditating on and remembering the *'time' of my teaching*, by deliberately listening to the voices speaking from this experience, I might come to new understandings of time and relationships. The discourses of progress and 'future' that press down on my work are radically interrupted by a meditation on the 'real' time of living on a Chernobyl planet, and the connectedness of our lives into a shared future on this singular habitable place. Perhaps nothing illustrates this so clearly as the story of what happened to the milk.

* * *

terra mater: the story of milk… continued

… The children drank the milk. The children became very sick. There was terrible suffering. The people were afraid now of the things they had built. They

didn't expect this to happen. No one had prepared them for it. They didn't know what to do. They couldn't kill the monster, so they put it in a concrete coffin. They didn't want to look at it. They only had time for their own sorrows now...

⁂

It was late August 1986, just four months after the Chernobyl accident. I was 19 years old and had just arrived in northeastern (West) Germany to work for a year. I had heard about the explosion on the news in Canada. I remember being told in the media that consumers should avoid European dairy products, especially cheese, for the time being. But the imported Danish havarti cheese that I loved looked like it always did, seemed innocuous and I didn't give it much thought. It had happened far away and didn't seem too frightening. But when I arrived in Germany, Chernobyl was suddenly a lot closer, despite that it had happened in the 'East' still locked in secrecy behind the iron curtain. The town of Bad Gandersheim was approximately 1400 kilometers away from 'Tschernobyl,' not far at all in Canadian distances, and the accident was on people's minds. Everyone was afraid. They talked about it all the time. *Don't go out in the rain. Don't drink the water from the tap, buy it in bottles. Don't eat the vegetables unless you know where they come from. And especially, don't eat the cheese. And don't drink the milk.*

Don't breathe?

Like everyone, I drank the milk. I ate the cheese. Sometimes when I was thirsty and didn't feel I had the money to buy bottled water I drank from the tap. I went out in the rain without an umbrella. Life went on. We couldn't see the radiation, hear it, feel it, or comprehend it. In any case, what was the meaning of invisible, silent Chernobyl compared to the pollution crises that were going on in the region where we lived? Acid rain was killing the forests and living things in the water right before our eyes. Pollution from unregulated factories was pouring over the nearby East German border and temperature inversions in the winter made the air so brown and thick with smog that the end of the street in this small and non-industrial town would disappear. Soon, for us, Chernobyl was out of sight and out of mind. By the end of that year, I don't remember hearing much about it anymore.

* * *

In a documentary film about Chernobyl, the film maker Slavomir Grünberg (1997) interviews a farmer who is herding his cows inside the contaminated exclusion zone:

Grünberg: "Is there radiation here?"
Farmer: "Yes, you can't drink that milk."
Grünberg: "So why do you graze her?"
Farmer: "There's nowhere else."
Grünberg: "Who drinks the milk?"
Farmer: (laughing) "Everyone drinks it!"

* * *

According to the 2006 Chernobyl impact report of the International Atomic Energy Association, the "greatest long term problem has been radiocaesium contamination of milk and meat" (IAEA, p. 25). By 2002, more than 4000 thyroid cancer cases had been diagnosed in children in Belarus, Ukraine and Russia. Because of the type and numbers of cancers in children in the region, the IAEA feels confident that "a large fraction" (p. 5) of those cancers are directly attributable to children's radiation exposure from drinking milk from cows that ate contaminated grass after the explosion. Millions more children (and adults) in the contaminated areas continue to be medically monitored especially for cancers. On April 25, 2001, the 15th anniversary of the accident, Kofi Annan, then Secretary General of the United Nations pleaded with the nations of the world not to forget what had happened at Chernobyl and to guard against possibilities of it happening again in the future: "At least 3 million children require physical treatment, and not until 2016, at the earliest, will we know the full number of those likely to develop serious medical conditions" (Annan, 2001).

❧

Marat Filippovich Kokhanov was the chief engineer of the Institute for Nuclear Energy of the Belarusian Academy of Sciences at the time of the accident. He was a member of the group of scientists responsible for testing and measuring the radioactivity of milk and meat. He says, "The milk factories carried out the government plan. We checked the milk. It wasn't milk, it was a radioactive byproduct" (Alexievich, 2005, p. 165). After the accident, mothers who lived in the contaminated areas were told to stop breastfeeding their babies immediately. He tells the story of a group of scientists who went into the Zone to check for radiation. They found high doses everywhere. A radiologist colleague who was with him "became hysterical when she saw that children were sitting in a sandbox and playing" (p. 166). They checked the breast milk – "it was radioactive" (ibid.). They checked the food in the village stores. Everything was radioactive. "We see a woman on a bench near her house," he explains, "breastfeeding her child – her milk has cesium in it – she's the Chernobyl Madonna." *The Chernobyl Madonna...*

Natalya Arsenyevna Roslova, a woman who lived further away from the accident said that they didn't worry much about it, at first. They trusted the authorities to worry about Chernobyl. They felt far away and safe. She says they didn't even look on a map to see where it was. "We didn't even need to know the truth, at that point. But when they put labels on the milk that said, 'For children,' and 'For adults' – that was a different story. That was a bit closer to home" (Alexievich, 2005, p. 18).

❧

A blue Rubbermaid container filled with twenty-five waxed cardboard cartons of vitamin D fortified milk appears like magic in my classroom at precisely 12:15 p.m. each day. I have not wondered about the safety of this milk or where it's come from or what the cows ate. The children's bodies seem strong, nourished by the sun and the wind and the grass of the earth. Chernobyl seems so far away and long ago from this place.

❧

In 1957, just a few years after the first nuclear power stations were built anywhere in the world, there was an accident with a serious fire at the Windscale nuclear power generating station in the United Kingdom. It released a cloud of radioactivity that contaminated parts of England, Ireland and Northern Europe. It was the most serious accident in a nuclear reactor before Chernobyl. At the time sophisticated technology for monitoring radiation spread did not exist, nor were there satellites to track its movement in the weather. The British parliament insisted that "no harm was done." No one was evacuated. But for many weeks the milk produced in a 200-square-mile area around the plant was confiscated and poured into the sea (Robinson, 1989). After half a century, who remembers Windscale?

◆

As I research and read these Chernobyl stories and talk about them with friends and colleagues, and they respond with that "huh?" I begin to doubt myself, my seeking to connect these things and my teaching work. They are at first not very obvious. It isn't at all enjoyable to think about. Sometimes it feels boring. I'd rather go shopping. But as I come across these stories about milk my relationship to Chernobyl changes. A fierce feeling takes hold of me. My jaw aches. I know suddenly why thinking about Chernobyl matters to me. *What it did to the milk* reminds me of my obligation as a human, as a woman, as a teacher of young children, to the future of the world. I am repulsed by all this nuclear power and weapons and wastes, by its powerful potential to destroy forever the fundamental ecologies of life, silently crossing what we think are boundaries and barriers, across nations, skin, tissues, bones, inserting itself into genes and codes that create the future. A hysterical scream is rising. What shall we do now? Shall we kneel? Shall we kiss this earth? The mother planet. Terra Mater. The origins of life. The Chernobyl Madonna. Toxic materials building up in the glandular tissues of breasts. Earth nourishment and mammalian breasts bind humans not just to a species but to an entire class of miraculous beings. What kind of species are we? What kind of species kills their mother? What kind of species kills their children? Who is willing to take this risk?

Nuclear technologies contain the seed that could exterminate all mammalian life by poisoning the milk.

I meditate on the implications of the entire earth becoming an "exclusion zone," as small groups of humans are making decisions for the whole planet, for the future– "treating the stuff of doom as an article of commerce" (Robinson, 1989, p. 176). Who can bear to look at this? *I'd rather be shopping.* And there lies the contradiction, the complexities, the ironies. It is perhaps in the delicate and difficult teasing out of the connections between my desires to consume and nuclear energy, between industrialization and production, between education and the market, and in the competition between nations and corporations for control and profit and more war machines, that a deconstructive space might be found for the emergence of different possibilities and timings, for the sacred languages and complex spiritualities of interconnectedness, of ecology and relationships, of life and cycles, mammary glands and life-giving fertilities. Is it possible?

three: *remembering the future*

"basic uncertainties": the big cover up

The massive present and future 'man' power and economic output required to continue to guard and protect the Chernobyl site continues to be unimaginable and incalculable. As jarring as the story of the milk seems, it is in the story of the Shelter that Chernobyl rises to mythical status, an incomprehensible and life-threatening monster(ousity), for who would believe such a tale if it were true? The original 'sarcophagus' covering the damaged reactor was constructed hastily in the months following the accident. The structure has been variously named Sarcophagus, Coffin, and Cover, but these terms seem to have disappeared from us[illegible] it is always officially now referred to as the Shelter. Proper construction in the urgent and dangerous conditions following the explosion was impossible and much of the work was done by robot and helicopters, dumping thousands of tons of materials from the air. Although a make-shift concrete and steel structure was eventually completed, in the intervening years water seepage caused damage and animals moved into the structure and it deteriorated to the point of imminent collapse.

Vince Novak (2000), who wrote a report for the "shelter fund" for the European Bank for Reconstruction and Development describes that the exact condition of the original shelter is not known, a situation he says is plagued with "basic uncertainties." Due to the emergency condition of the structure, repairs were conducted in the late 1990s to attempt to hold the shelter together while a plan was made for a more permanent solution. These repairs took 400 workers rotating constantly to limit their exposure to radiation (Novak, 2000). While the exact condition of the Shelter may not be known, what is under the "cover" is well understood and the consequences feared. If the original shelter were to collapse, "the consequences would be even more dire than they were in 1986" (Alexievich, 2005, p. 2). Novak explains: "Just a few per cent of the nuclear inventory of the Chernobyl Unit 4 contaminated two-thirds of the territory of Europe in 1986" (Novak, 2000, p. 4). Under the cover is:

> more then 200 tons of nuclear fuel in various forms, predominantly as a 'lava' formed by the fusion of molten fuel, concrete and other structural materials, some 30 tons of fuel dust and approximately 2,000 tons of combustible materials. In the basement region of the Shelter, rainwater and finely divided fuel dust have formed a liquid, which is regarded as high level waste (Novak, 2000, p. 13).

The Chernobyl Shelter Fund was established in the 1990s by the European Bank for Reconstruction and Development. The group is charged not only with managing the design and construction of the new Shelter, but also with the future monitoring of the site. International appeals were made. By 1999, Canada had already donated U.S. $20 million (Novak, 2000) and many European nations significantly more than this. The preliminary estimated costs of a new Shelter to replace the existing sarcophagus was approximately U.S.$750 million to the global community (Marples, 2001). By 2003, 750 million Euros were promised to the fund (ERBD, 2003). But the cost of the new Shelter continues to rise and in 2005 was reassessed and clarified by diplomats attending a G8 meeting. The new budget is U.S.$1.1 billion (Popeski, 2005). In addition, because of the severe danger involved, most parts of the project and all people working on it were not insurable in any regular way by the insurance industry, so a plan had to be established to provide insurance outside of the industry (Novak, 2000). The plan and tender for the project stipulated that it must last for 100 years. This 'Shelter' is admittedly a mere 'stop gap' measure, to *buy time*, literally, to develop a more long term solution to deal with the Chernobyl site and find a way to clean up and dispose of the materials in a 'safe' way for the distant and long-term future. (As discussed later in this chapter, there is as yet no known way or existent technology to do this.)

The contract for design and construction of the new Shelter was awarded to the U.S.- based and billionaire family owned engineering firm Bechtel International, with several other European partners. The financial profits of the Chernobyl Shelter to Bechtel and others are as yet unreported, while Ukraine and Belarus particularly continue to spend massive amounts of their annual GDP on Chernobyl 'fall out.' Construction of the new shelter is currently underway, by humans off-site and at a safe distance. Within the next few years, an attempt will be made to move it to Chernobyl and manipulate it into place with machines and robots, sliding it along rails to cover the existing sarcophagus. The sheer size of the new Shelter is awe inspiring: big enough to contain all of St. Paul's cathedral in London. It is so large, in fact, that it is considered to be a microclimate. There are fears that it could "rain" inside, and the structure will require constant internal temperature and climate monitoring ("Chernobyl Shelter Design", EBRD, 2003). Nothing like this has ever been attempted in the history of human engineering and design. In their report, Bechtel refers to this as a project of "extreme engineering" (Hogg, 2006).

On the one hand, the design and construction of the Shelter might be even properly understood a testament to the magnitude of human creativity and ingenuity, and of our great faith in human abilities to solve problems with technology. On the other hand, in no place in any of the literature did I find mention, not even a hint, of the possibility of 'failure' in this endeavor. It is unthinkable. Yet, in this unthinkable space Chernobyl presents a vision of radical uncertainty – not 'basic uncertainty' - about the future about this very construction project, about accidents, human failures, equipment failures, empire failures and visions of future annihilation while the human species (and Others) are yet alive today. Is it that it is too big, too scary, too monstrous to look at? In this sense, perhaps Chernobyl represents metaphorically if not literally the line of denial that inscribes those apocalyptic edges (Keller, 1996) of our time. The impact of nuclear technology with its destructive potentials is bigger and more enduring than any human generation. As such an edge it lies at the borders of consciousness, neither here nor there, almost passing into the zone of forgetfulness (except for those who actually live *there*). A internet search on the meaning of the name Chernobyl quickly revealed (revelation, from Latin *revalatio* OCD) this mythological and metaphorical situation. There are innumerable questions and conversations about whether the word Chernobyl is the same as the word for the plant wormwood – *apsinthos* in Greek – that is, the name of the death star one of the angels in the biblical apocalypse throws into the earth's waters, turning them to poison. Following the accident, it captured the popular imagination of citizens in the former Soviet Union "giving Chernobyl the quality of an almost supernatural disaster" (Schmemann, 1986, p. 4). And what other way could there be to understand such an event except as punishment from the gods? The metaphor captured imaginations further away as well. A front page New York Times article was published shortly after the accident:

> A prominent Russian writer recently produced a tattered old Bible and with a practiced hand turned to Revelations. 'Listen,' he said, 'this is incredible: 'And the third angel sounded, and there fell a great star from heaven, burning as it were a lamp, and it fell upon the third part of the rivers, and upon the fountains of waters; and the name of the star is called wormwood: and the third part of the waters became wormwood; and many men died of the waters, because they were made bitter.' In a dictionary, he showed the Ukrainian word for wormwood, a bitter wild herb used as a tonic in rural Russia: chernobyl. (Schmemann, 1986, p. 1)

In 2006, to remember the 20th anniversary of the accident, a fundraising concert for victims was held in Toronto at Roy Thomson Hall. Christos Hatziz, a University of Toronto professor and composer wrote a choral work entitled *Wormwood* completely drawn from text in the Book of Revelations.[15] Dr. Adolph

Kharash, the science director at the University of Moscow, writes of "the evil flash of light, the star Wormwood (in Russian, *Chernobyl*), which two thousand years ago was prophesied in the Book of Revelation, and which that night abruptly incinerated people's hopes and plans" (Kharash, n.d.). But Dr. Kharash does not refer to Chernobyl as a *literal* biblical event, despite the name, rather, a metaphorical one (although nevertheless very real), a

> metaphor of universal destruction, a prophecy and sign of the Apocalypse. (…)But for earthly tragedies earthly beings must pay the price. The perishable flesh prevents the spirit from freeing itself from earthly cares and soaring into cosmic space. Flesh drags the spirit down to the deserted hearth, forces it to grieve inconsolably for the fate of relatives and neighbors, to look into the eyes of children in which an unchildish despair is fixed.[16]

And so through terrible twists of linguistic meaning the accident is elevated into the realm of myth. And perhaps the best way to face it *is* as a mythical and metaphorical situation, of what Catherine Keller (1996) called living *in* apocalypse. Not as a preordained End, but as a warning, and living out of a story a certain group of humans have written, as a reminder to be mindful. And read in a mythological space, the apocalyptic possibilities of Chernobyl are profound in light of current human and ecological situations on the planet. The arguments over whether biblical prophesies are literally coming 'true' do not matter here. We live in stories. Ben Okri (1997) said that humans are "*Homo fabula:* …story telling beings" (p. 114). We tell ourselves many stories. Like the one about preparing children for the future of work, or that we are shopping and consuming beings in search of the eternal good bargain to achieve happiness (or rapture – except for the children who struggle to read and will be 'left behind' in economic competition). But these stories might also be changed, different stories can be told, and all stories can be deconstructed. In time.

◆

language closing … on resettling the planet earth

While in the literature the name Chernobyl might be repeated endlessly and with such tiring constancy as to drift into either into meaningless or into taking shape as this mythical space/face of a terrifying god or angel, much of the writing about the people (or other living creatures) reduces to singularities with statistics: everything becomes a number while the actual names of the affected, names of people, of towns, of plants, of animals, of insects, are almost never mentioned. In keeping with the scientific obsession with the measurement of all things, they are transformed into mathematics through disconnected and banal arguments about the number of *actual dead*, and the suffering of the 'living' is erased and forgotten in the here and now. This includes the hundreds of thousands of refugees, if they can be called refugees as this is not a term normally used for the 'internally displaced.' Thus, language – a neat linguistic twist – turns these people who instantly lost everything, their homes and even the clothes on their backs, which were thrown into deep pits in the earth, makes these people into settlers or re-settlers. This is an almost wholesome and adventuresome term bringing to mind images of horse-drawn carts setting off into imaginary pure and unclaimed lands. While these people become 'settlers' looking for new homes, Chernobyl takes on the qualities of a dangerous and living character, which also requires 'housing.' Its present Cover is at the end of its 'life' (and oh, what a short life it was!) and so it receives a technologically extraordinary climate-controlled 'Shelter' to which the entire world contributes financial resources. Meanwhile, the people's story (to say nothing of animals, insects and trees) pain and suffering, their belonging, and their shelters, are literally buried in earth. To continue the apocalyptic metaphor for just one more sentence – they are being 'left behind.' Naming them 'settlers' hints that there are actually places of open and free land on earth, places for people who lose their homes to go. But what if, what if - this question lurks inside that Shelter - there comes a time when there is no longer a place to '(re)-settle' living life, no safe place to rest, no place to find Shelter? What if the whole world becomes a sarcophagus?

Lyubov Sirota is a poet who lived in the city of Pripyat just a few kilometers from the nuclear reactors, a city that was built specifically to house the workers of Chernobyl and their families and the infrastructures to support them. On April 26, Lyubov was awake during the night and went out on her balcony. She was one of the few who witnessed the explosion and as a result was exposed to high doses of radiation and has been ill ever since. Lyobov's story does not show up in the official documents. She is not named, or counted among the victims except in the number of 50,000 evacuated from Pripyat. She did not *die*. In the words of her poem, "They Did Not Register Us," we can *read* her grief, her suffering, her anguish at being "forgotten" by the official record, by the official story, and at the denial that her suffering is "linked to the accident." "They wrote us off," she repeats through the piece, and then in present/future tense: "They keep trying to write off our ailing truths." She describes herself as the "payment for rapid progress, mere victim (of someone else's sated afternoons)." The final stanza of Lyubov's poem reads:

> But nothing will silence us!
> Even after death,
> from our graves
> we will appeal to your Conscience
> not to transform the Earth
> into a sarcophagus!
>
> (Sirota, n.d.)

From the margins of the unofficial writings, Lyobov's words prophetically warn and remind, revealing much more than the documents of the International Atomic Energy Agency, or the World Nuclear Association. The poets *will speak*, as they always have, even after death. Her story, her human phenomenological experience, her words are in time, personal and embodied, and as such real and worth attending to as a cry of suffering, demanding human presence in time and place. In my own school, in my own pedagogical practice, I witness many such erasures and absences each day. The overarching stories and philosophies of education in this wealthy place have much power to dissolve and silence the personal experiences and stories of children's lives. Of my own life. Of my colleagues lives. Of the living earth. Lyobov's story shakes me into a place of despair about this teaching work. It is not just her individual aching truth that is written off, but the aching truths of life and suffering on the planet under the regimes of 'rapid progress.' What is going on? Much surface attention is given to such questions like global warming in my local teaching community, but under that surface there seems only this terrifying acceleration and transformation of the dream of public education into corporate competition and near para-military organization of structures of control and surveillance. Separating us from our one true shelter, the irreplaceable earth, the school building and the institutional structure might become deathly.

* * *

language opens ... on monsters, memory, and mourning

Why did the word 'sarcophagus' disappear from talk about Chernobyl? Because it is distasteful, reminding too much of death? A sarcophagus is a tomb to cover or house the bodies of the dead. Perhaps then it was appropriate that this name was discarded as Chernobyl is *not* dead; rather it might be in some ways seen as *Death* personified. For a while, the sarcophagus become a 'Cover.' A cover to hide what is inside, to cover it over, to create a boundary of protection, to protect it from the weather and animals. Cover sounds clean, innocuous, safe. Then, when the European Bank became involved in Chernobyl's containment, the Cover became the Shelter. The use of all these names is not without embodied meaning and purpose. Each invokes mysterious and mythological associations for the present and the future, for new stories unfolding in the construction of Shelters and new towns for settlers on the frontiers of a 'new world' (order). A dream I might have:

The extreme engineers are standing outside the reactor in their protective suits, looking like strange knights visiting a far off planet. They are pumped up with the adrenalin rushed excitement of discovery, of first times, of their testosterone-filled life or death adventure. They have swords in their hands like ancient heroes ready to tame, conquer or slay the monster that with all its phallic power might be getting ready to 'blow' again.[17] *Will we next be bringing food offerings to appease it? Maidens tied to trees? Rituals enacted outside its doors? Or will this Shelter satisfy the beast for a generation or two?*

* * *

And so, for now, the monster sleeps, soon to be temporarily contained in its new home. Imagine for a moment, a time in the future that is not yet here. The name of the Shelter has changed again and human descendents call it a *monument*, for the task of forever maintaining and containing this poisoned place has become monumental for them. And what might such a Chernobyl monument memorialize to these future people? Itself? Time? Human ingenuity? The history of technology? Life's suffering? What is it that is buried there? What shall be watched, remembered and memorialized?

From this one word – monument – the philosophical and ontological meanings of Chernobyl begin to open, deconstruct, dissolve, and take on new dimensions. Connections begin to form through the origins and histories of human speech and storytelling. A monument is defined in English as a building or structure placed over a grave in memory of the dead, and also a "lasting reminder" (stemming from the Latin *monumentum*, from *monere*, to 'remind' ODEE, p. 588 and OCD, p. 940). From this *monere* root also springs the meanings of the words to monitor, to be vigilant, and to keep watch (OCD, p. 936). The word monster is also related, sharing the *monere* root, and related as well as the Latin *monstrum*, meaning a "divine portent" (OCD, p. 939). Monster also "springs from the same root as remember, remind, mind, Mnemosyne" (Keller, 1986, p. 90). *Memory* is from the Latin *memor* meaning "mindful" (COD, p. 1220). Other words that stem from the *memor* root include 'remember' and 'remind' from *rememorari* defined as to 'recollect' or to call to mind – a verb – the act of bringing something back into the mind. The roots of memory are also connected to the word 'mourn,' to feel sorrow, to lament (*L memor* – mindful ODEE, p. 593). Mnemosyne, daughter of Gaia (earth) and Uranus, is the Greek Titan personifying memory. She is the mother of the muses, by Zeus. Mnemosyne is also the name of a river in Hades. In the Greek myths, the dead had to choose between drinking from the waters of Mnemosyne, to remember, or the waters of Lethe, to forget or lose the memory of the past. Thus, in thinking of Chernobyl becoming a *monument*, a reminder about the dead and suffering (living) perhaps, it is no longer merely a house for a monster. It stands also as a warning, a portent, and "omen" about the future: that is, "a significant sign of something to come" (COD, p. 1129), a place to remember, to mourn, to keep watch over. A place from which to listen to the future.

* * *

"when everyone's back was turned"

The word 'forget' is defined as to "lose the remembrance of," or "put out of mind; cease to think of" (p. 544, COD) or to "fail to remember" (COEE, p. 371). *Forget* has its origins in northern European languages, old English, old High German, old Saxon, old Friesen. The etymological meaning is to "miss or lose one's hold" or grasp (COEE, p. 371). Poet Don Domanski (1994) calls forgetting a "space/when everyone's back/was turned" (p. 15). It seems Chernobyl, as a house of death, could be draining into the Lethe, a symbolic symptom of forgetfulness. Or, in facing it even in abject horror, a place of learning remembrance, and in so being, read as a portent, a sign of the closing of the illusions of distance between space(s) and time(s), as a reminder on the consequences of turning our backs on remembering that life depends on a sustaining and intimate connection with life, with the land, that the price of progress means 'writing off' people and places, not registering them, paying no mind(fulness), covering up.

Jacques Derrida (Derrida & Caputo, 1997) referred to the practice of memory as the "work of mourning" (p. 158). He points to the work of memory as an "affirmation of the future, of those who are yet to come," through the remembering of "the spirit of those who precede us (revenants) without assimilating their alterity into the present" (ibid.). An obligation to time, to the future and to the past, to the living and the dead, to the suffering and to the still unborn. When Joanna Macy (2000) traveled to the Ukraine and Belarus in 1992 to conduct post-trauma workshops with Chernobyl survivors, a woman asked her what good remembering would do, for example, against cancer. Then one of the women in the group commented that by mourning, her heart was breaking, and that this felt right: "It connects me to everything and everyone, as if we were all branches of the same tree" (p. 268). Humans: branches of the same tree, connected to everything and everyone through all time. Perhaps, the possibilities for the future of pedagogical work begin in this work of mourning, in remembrance, in memoriam, of the here and now, in open vigilance to the world, and not in the distracting and meaningless *monitoring* of children's progress and growth which is a forgetting, losing our grasp. This mourning and remembrance is a *monitoring* that faces what is happening in the here and now, to and for life, that recollects the scattered fragments, and divisions, the hatreds, the joys, the mundane and the divine into a heartful space. A remembrance that includes *monitoring* the monsters, including the monsters within ourselves, paying attention to portents and warnings, calling on the muses to help us write (an)other stories. Memory is an "exercise in telling otherwise" (Ricoeur, 1999, p. 9).

Pedagogy as memory becomes ethical practice. As *Homo Fabula*, the gift comes to tell another story, other stories of life's possibilities. Catherine Keller (1986) writes that "Re-membering takes us … not only to a different time, but to a different sense of timing" (p. 90). As a teacher, acts of conscious remembrance might yet drag me out of small daily obsessions, time-bound procrastinations and distractions and into the realm of mythical thought and living, where life is larger than life, to the conviction that *life* might continue to have shelter on this planet. If remembering takes us to a different *timing*, perhaps invoking memory as pedagogical practice becomes a way of confronting the difficulties of the future discourse that dislocates educational spaces and subjects (both human and disciplines) from the timing of the earth. As *monumental* as the monsters are, in facing them, in remembering rather than turning our backs, in keeping our grasp, might this transform the despair I feel about my work into a spirit of fresh meanings? Falling over the edge into the place of birth and death, bodies, terror and sublime beauty, the moment by moment world has material (matter/mother) substance. *It is real.* Memory might become that ethical practice that sensitizes to suffering in the world, in ourselves, in myself, in children, fostering a protective and practical concern for life. Education: this precious work, the most precious work perhaps, where I have the opportunity – nay, obligation – to take care of life, in those day-to-day relationships with children, and seeing them, *remembering* them, their amazing beautiful minds seem now so tender, so fragile, so new, and worth caring about, worth giving life's energy to.

* * *

Oh Memory, daughter of earth, shall we drink from your waters that this world not be turned into a sarcophagus for the miracles of life? Mother of muses, how we call out for your children now to inspire in telling, dancing, laughing, crying, writing stories of life's futures together.

* * *

in uncertainty, imagining futures

In the act of *remembering* Chernobyl, might *all* potential and possible ecological disasters are called to mind(fulness)? (In particular those that are human-caused and not 'acts of god(s)' like meteor strikes and earthquakes). The following section considers the psychological possibilities of this re-collecting, ponders difficulties and freedoms it brings to human living, breathing, being, knowing.

When so much of my daily work involves both responding to children and to the world, and acts of curriculum interpretation and implementation, why is it so difficult to think about the future? *There won't be another world now. It is forever a Chernobyl planet.* In the words of those scientists whose personal, collective, and intellectual worlds were shattered is a calling out in grief and mourning to new ways of speaking, thinking, and being; a jerking out from dreams the promise of a rosy progress-filled future. Facing human limits and a time-bound nature is a difficult task for believers in progress who have already managed to soar into the universe and even land on the moon. But the 'truth' in facing Chernobyl is that the difficulty lasts forever now, arriving full of uncertainty and heavy burdens and the hard labour of future clean-up without a schedule for its completion. Humanity (more than 6 billion of us!) remains helpless in the face of it. I do not want to write these words. In a culture used to 'knowing', and to trusting knowledge and science, the confession of not knowing what to do in the face of this terrifying uncertainty brings pain, wounds expectations and disappoints hopes. The extent of this uncertainty and not knowing becomes clear from the variety of sources about Chernobyl, be they called 'independent' press, industry documents, or United Nations papers. No one has any idea what to do. Not the average citizen, not the politician or the scientist in whom the public places faith in these matters. This is why a 100-year Shelter is being made to cover Chernobyl. Chernobyl *is* uncertainty. And the future is an absolute uncertainty regarding these questions. *We do not know what to do.* It is not comforting to realize that possible solutions are almost always worded in the future tense. In the 2006 International Atomic Energy Agency report on Chernobyl, the authors write:

> During the years following the accident large resources were expended to provide a systematic analysis and an acceptable strategy for management of existing radioactive waste. However, to date a broadly accepted strategy for radioactive waste management at the Chernobyl power plant site and the Exclusion Zone, and especially for high level and long lived waste, *has not yet been developed*. (IAEA, 2006, p. 29, emphasis added)

Similarly, a recent *Scientific American* article (Deutch & Moniz, 2006) written by two MIT professors focuses on the future possibilities of nuclear energy use. While dripping with optimism that nuclear power promises to slow or halt global climate change, when their topic turns to nuclear waste they outline the concerns of the public (no one wants the waste near them) and they declare confidently that atomic waste is a problem that "*must and can be solved*" (p. 83, emphasis added). In the present the solution is not yet here. What am I supposed to tell children in my classroom about their future? What do they need to *know* when they arrive in it?

In 1991, the United States Department of Energy established 'The Futures Panel,' a group of high-level scientists from across the nation and from various disciplines who were brought together to work on "how best to provide one hundred centuries of public warning" (Pasqualetti, 1997, p. 73; Pollon, 2002; Frauenfelder, 2005) at the proposed Yucca Mountain nuclear waste disposal site in Nevada. The panel's role was to lay out possible doomsday scenarios to determine what kinds of markers, monuments, and warnings to leave for future generations at a site that would not be *monitored by humans* after one century. To word the length of time as 'one hundred centuries' may at first be concealing and deceiving. One hundred is a number that a human mind can understand. The temporary solution to cover the Chernobyl waste, 100 years, takes humanity to the year 2108 on the current Western Gregorian calendar. A few children born on the planet this year might still be alive in that year. *One hundred centuries*, on the other hand, takes us *ten thousand years* into the future to the year 12,007 C.E. One hundred centuries into the past would be around 10,000 B.C.E., the beginnings of agricultural human settlement. Some of the high-level waste at that site will still be dangerous after 100,000 years, but the DOE felt that 10,000 was 'reasonable' for the warning system design. How can we think in such time periods? If those human agricultural ancestors had left us a message of terrible danger to ourselves and the planet, would we have 'remembered' it? Would we understand it today?

To the Futures Panel both the process and their task became impossible and problematic. Martin Pasqualetti (1997), a professor of geography who was a panel participant, reflected afterwards on his experiences and learning and realized particularly the ways that post-industrial humans have scarcely begun to understand the meaning of nuclear power and weaponry, its possibilities to alter and destroy the "landscapes of earth" (p. 78), and especially the implications of not yet knowing how to store radioactive wastes safely over long periods of time. In telling the Panel's story, Martin Pasqualetti documents the participants' difficulties not only in *thinking* of the unthinkable problem and time of radioactive wastes but the impossibility of trying to "know" unpredictable and unknowable future cultures, languages and politics (e.g. political instability, record keeping, institutional memory, changes in languages and "lost knowledge" [p. 81]). There is a stark contrast between "the short, unsteady course of human political history versus the long decay time of radioactive waste," wrote Elaine Dewar (2005). "A million years is a blink in the lifespan of the universe, but it is inconceivable in the context of any human society" (p. 84). Zen Buddhist scholar Kenneth Kraft (1997) has suggested that nuclear waste is like a koan, a problem without a solution. The members of the Futures Panel grew depressed, discouraged, and repulsed by their impossible task. They realized the "futility of the exercise" (Pasqualetti, p 89). The Panel's final recommendation, though not the one the DOE had asked for, was that the situation of present nuclear wastes on the planet is already an incomprehensible emergency so dire that *no further nuclear waste* must ever be produced. Another one of their solutions, which was rejected, was to leave some of the waste on the surface, so anything that came near would become sick and die (Frauenfelder, 2005). What better and more blatant warning could be left behind? Martin Pasqueletti concludes: "The more fully we appreciate the uncertainty of our understanding about the future, the less likely we are to presume that any single decision we make will have a genuine impact on the safety and security of our descendants remote in time" (p. 88).

How then might this uncertain future be 'thought' about or understood, given the *certainty* of the timeline of nuclear waste? Even the most wishful and hopeful thinking might dissolve in the face of it. What is the meaning of this for the work of teaching, for teachers who are bombarded with so much distraction by way of 'other' and more pressing 'problems' like Literacy crises (covering up this and all ecological crisis) or with the banter about preparing children for their future of work. In Canada, debates rage about what to do with our own increasing nuclear wastes and whether we should build more nuclear power plants in Ontario, the Maritimes and perhaps even Alberta to power the extraction of energy from the oil sands. It seems unlikely that this will be avoided, given the emergent(cy) screaming about climate change leading to much discussion about building more nuclear power plants. The action/engagement of remembering Chernobyl (here standing as a *monument* to the impossibility of all nuclear waste) invites us, as teachers, as human beings, as 'global citizens,' as those who might care about the 'safety and security of our descendents' to meditate on the meaning of teaching during a nuclear time, to join those who think and sit on panels, to *walk together* through the futility and revulsion. There is no guidebook for this, no curriculum, no prescriptive or predictive knowing or measurements that points the way to how our human minds might imagine this time of the future. The invention of ourselves as nuclear humans puts us always and forever not just in human time, but in geological time (as we always have been), the human ecological impact now reaching into the hundreds of thousands, if not millions, of years. Schooling and curriculum and philosophies that focus on short-term preparation of children for work – or life – for 'Ends,' do not take this long-term future into account.

There are grave difficulties inherent for human minds in imagining this future. It is far outside our experience of time and timing. The *timing of Chernobyl*, an instant for an explosion, a million lifetimes of toxins, might well leave an onlooker silenced and speechless. Who could understand this timing? And neither can we *master* the difficulties it has created. What can the human mind do with such a thought? What does it do to the spirit, to the psyche (in Greek: life, breath, soul, *psukhē*)? Yevgeniy Aleksandrovich Brovkin, a science instructor at Gomel State University in Belarus reflects on why, when he tried to write about Chernobyl and his experiences with it, his work was not accepted for academic publication:

> I've wondered why everyone was silent about Chernobyl, why our writers weren't writing much about it – they write about the war, or the camps, but here they're silent. Why? Do you think it's an accident? If we'd beaten Chernobyl, people would talk about it and write about it more. Or if we'd understood Chernobyl. But we don't know how to capture any meaning from it. We're not capable of it. We can't place it in our human experience or our human time-frame. So what's better, to remember or to forget? (Alexievich, 2005, p. 90)

Anatoly Shimanskiy, a journalist who has also tried to write about Chernobyl experiences, heard scientists after the accident talking about the thousands or millions of years it would take to decompose the uranium. He reflects on how his individual and mortal human mind cannot grasp meaning in these numbers: "Fifty, one hundred, two hundred. But beyond that? Beyond that my consciousness couldn't go. I couldn't even understand anymore: What is time? Where am I?" (Alexievich, 2005, p. 127). After Chernobyl, or looking at Yucca Mountain, struggling to make meaning and sense in facing these monsters, our sense of confidence in time and place, in what it means to be human, might collapse. What is human? What is the earth? *What is time? We can't place it in our human experience or our human time-frame. Where am I? So what's better, to remember or to forget?* Confused and displaced by (post?)industrial time clocks (including that one recently moved closer to "Doomsday"), losing our ground, how do we know where we are? If forgetting means losing one's grip, then in remembering what is there to hold on to?

Annie Dillard (1992), in her book *For the Time Being* writes: "There is now, living in New York City, a church-sanctioned hermit, Theresa Mancuso, who wrote recently, 'The thing we desperately need is to face the way it is'" (p. 19). These scientists and journalists, in their questions and confusions, in their honest words and struggles to name their 'new' world, open the possibility that facing 'the way it is' means not finding a solution or a positivist and hopeful answer. It is not grounded in arguments about how many have died, or how many cancers to come, but in the sacred and ontological experience of the event, the mythological experience, for this is the human *being* experience *in time*. In the existential struggle, the meaning of these events is elevated, and so life itself, even for a moment, might live beyond this, recovering/remembering its own ground and timing in a universe of humanly incomprehensible time and distance in which this tiny blue planet is a miracle, orbiting a still young sun. Sublime openings to the sacred.

Where am I? What is time?

◆

Shhh... Listen. Over there. There is weeping. Someone is in mourning. The muses are arriving now. They hold out their hands in invitation. It is hard to hear them amidst all this clamour of loud ticking clocks. Their voices are soft. Their bodies are translucent. They are so old. Come, they whisper. Come, they beckon. Do not turn your backs, they beg. Have courage, they are pleading now with their hands clasped tightly. Write a new story together with us. Take the water, the River Mnemosyne, and pour it over the Chernobyl Madonna. Let it spill down over the earth, our grandmother, and flow until it fills the rivers. Do this, and then rest your tired human spirits for awhile.

◆

on living in the wound

> We're afraid of everything. We're afraid for our children, and for our grandchildren, who don't exist yet. They don't exist, and we're already afraid.
>
> Nadazhda Afanasyevna Burakova, resident of Khoyniki
> (Alexievich, 2005, p. 199)

Psychologist Miriam Greenspan names the time we are living in a "global dark night of the soul" (2003, p. 247). A year before the Chernobyl accident, during that time called the Cold War, Michael Allen Fox (1985) suggested that humanity was already suffering from nuclear "psychological fallout" (p. 113), the symptoms of which were fear, gloom, despair, cynicism, fatalism, meaninglessness and apathy in the face of the threat and before any event like nuclear war had actually occurred (with the exception of the bombs dropped on Japan in 1945). But then Chernobyl erupted, for *real*, and caused *real* and psychological radioactive fall-out, both near and far, through time. When Joanna Macy (2000) visited some of the most contaminated areas near Chernobyl she expected to hear many stories about "the event" (p. 264) but instead she found silence about the accident. People didn't want to talk about it – more pressing was their need to share their anger, their depression, and the problems they and their children were experiencing in the present.

In exploring the meaning of (remembering) Chernobyl for my work as a teacher and my own life as a human being, I have come to realize that Chernobyl is a very real, huge, and desperate problem, not just physically in the sense that it threatens human bodies (some more than others, now) and the body of the planet, but perhaps even more desperately it threatens spiritually and psychologically. Ecological catastrophe is harmful and harming in ways that might not be immediately apparent or expected, what Andy Fisher refers to as the chronic low-grade ecological trauma affecting the psyche (psukhē, breath, life, soul) of the entire human species. Thus, the act of *remembering* Chernobyl is also the hard work of attempting not just to formulate a response, but to understand the psychology of global ecological catastrophe, of which Chernobyl is just one symptom, symbol, reality. As it unravels both a sense of time and the future of life, with apocalyptic visions lurking in the background, the psychological reality surfaces as trauma, fear, and uncertainty. For the work of teaching, the trauma might not be for most in the direct experience of radiation, but in the realization that *the future has arrived already* in our nuclear existence. The hopeful, progress-filled future dissolves before Chernobyl to reveal an enduring and poisoned one that lasts and lasts, upstream and downstream, outlasting many generations of not-just-human life to follow. Not only this, but a difficult and painful knowledge surfaces: that in the very innocence and necessity of turning on our lights, or using a piece of paper, or replacing our school's computers, we may be causing suffering and harm to future life. To unknow the progress future is to know the future that the children I teach and learn with are living towards. Thus to consider the meaning of Chernobyl for teaching is to invoke a paralysis in the face of the (*Real*) future. Once again it brings up the question(s) of our human relationship to the time of life on the planet earth. Life itself suffers an existential crisis, rendered, for a time, impossible, by Chernobyl.

Joanna Macy (in Greenspan, 2003) suggests that humanity suffers from a "PTS" disorder, not "post" in this case but "pre" and "present" shaped by ecological experiences and also in fear of future possible and imagined experiences. Perhaps this explains something of the seeming current obsession with genealogy and tracing ancestry, because facing the future generations is too difficult and impossible given the already current conditions for life on this planet.

> Until now every generation throughout history lived with the tacit certainty that other generations would follow. Each assumed, without questioning, that its children and children's children, and those yet unborn would carry on, to walk the same earth under the same sky. Hardships, failures and personal death were ever encompassed in that vaster assurance of continuity. That certainty is now lost to us. That loss, unmeasured and immeasurable, is the pivotal psychological reality of our time. (Joanna Macy, cited in Greenspan, 2003, p. 248)

In the three nations most affected by the accident, the psychological effects of Chernobyl are now recognized officially as the *largest* health factor, more than radiation exposure or cancer and other illnesses that have resulted combined. The IAEA (2006) in their report states that the anxiety is not decreasing but rather spreading further in the population as a sense of fatalism that is even being passed on to the children in the region born after the accident. I see examples of this in my own life, in my teaching, although from different causes. Some children are exceptionally concerned about the environment and about conservation, although who is to say what would be too much concern in this time. Recently, several children have individually asked me if I am "afraid of global warming." This does not ever come up in public spaces, like classroom discussion, but always as we are doing something outside, or walking down the school hallway together. Perhaps as teachers we might remember from this Chernobyl experience, that in a time of many distractions and of making children into what 'we' want 'them' to be, to pay more attention to the emotional lives of children, to their relationship with the world, their fears, to their questions, to be honest in our existential inquiries into the human condition. This inquiry into human (and non-human) conditions is what is precisely excluded from discourses like preparing for the future, where human thought and experiences now are of no consequence, where the voice or experience of a person are valued about as much as the experience of a tree or a fish. Where and when will there be space and time to linger in the unanswerability of questions and in the impossibilities of answers? Where and when will there be time to seek wisdom, to drink from the Mnemosyne, to seek language to name what is happening?

Sergie Gurin, a documentary film-maker, speaks about how he struggled to understand the accident. He says when he was filming war it was easier to understand the time scale and the numbers, but that with filming Chernobyl the meaning of these slipped into incomprehensibility: "But here, in the first few days it was something like seven firemen. Later, a few more. But after that, the definitions were too abstract for us to understand: 'in several generations,' 'forever,' 'nothing'" (Alexievich, 2005, p. 115). Sergie relates how that as he filmed inside the "Zone," the psychological impact on him personally was that the distance and connections between himself and other living creatures began to be narrowed. He says: "now I film only animals" (p. 117). He reflects particularly on the fear post-Chernobyl children in the region are living with. At a showing of one of his films, he says, a quiet young boy asked a question, "Why couldn't anyone help the animals?" (p. 117). He describes this child at this moment as "already a person from the future." Sergie couldn't answer the child's question:

> Our art is all about the sufferings and loves of people, but not of everything living. Only humans. We don't descend to their level: animals, plants, that other world. And with Chernobyl man just waved his hand at everything. I searched, I asked around, I was told that in the first months after the accident, someone came up with a project for evacuating the animals along with the people. But how? How do you resettle them? Okay, maybe you could move the ones that were above the earth, but what about the ones who were in the earth – the bugs and worms? And the ones in the sky? How do you evacuate a pigeon or a sparrow? What do you do with them? We don't have any way of giving them the information. It's also a philosophical dilemma. (Alexievich, 2005, pp. 117-118)

Sergie's words reflect a recognition of the philosophical dilemmas faced in this fear for the *future of life itself*. In Belarus, this extended to the fear of bringing new life into the world, that is bearing new children to carry forward the human genetic inheritance. Could this be the stuff of science fiction? Aleksandr Revalskiy, a historian, told Svetlana Alexievich (2005):

> I'm afraid of the rain. That's what Chernobyl is. I'm afraid of snow, of the forest. This isn't an abstraction, a mind game, but an actual human feeling. Chernobyl is my home. (…) in the papers it said that in Belarus alone, in 1993, there were 200,000 abortions. Because of Chernobyl. We all live with that fear now. Nature has sort of rolled up, waiting. Zarathustra would have said: "Oh, my sorrow! Where has the time gone?" (p. 174)

Oh, my sorrow. Where has the time gone? Chernobyl, Slavoj Žižek (1992) writes, is an "open wound in the world" (p. 37). It is a "cut that derails and disturbs the circulation of what we call 'reality.' To 'live with radiation' means to live with the knowledge that somewhere, in Chernobyl, a Thing erupted that shook the very ground of our being" (ibid.). Human symbolic structures, searches for meaning, scientific faiths, might collapse in the face of Chernobyl. There is not a cultural language for such a 'Thing.' Our very and various understandings of ourselves as a human species, our sense of control, begin to dissolve. Maybe it can be covered up with a Band-Aid like a Sarcophagus – maybe even called a Shelter – but when faced, even speech might collapse. Helpless in the face of it, humans are reduced "to the role of impotent witnesses" (p. 36). From the perspective of Lacanian theory, Žižek outlines possible responses not just to Chernobyl, but to ecological crisis of which Chernobyl might be one of the ultimate metaphorical *signs*: Chernobyl's radioactive threat is death to life, and therefore ultimately to human (and creaturely) survival. All of these responses can be seen in Chernobyl's story. There are those who say it was "much ado about nothing" (ibid.) and everyday life goes on as usual. Some panic, become frantic to restore "balance" in nature, seeing humanity as a sole sign of imbalance, obsessed with recycling or saving nature, to the point of obsession, as if it all depends on "us" alone and if "we" stop everything will collapse (as "a traumatic kernel to be kept at a distance by obsessive activity" [ibid.]). Another response is to acknowledge the crisis and disavow it at the same time: "I know very well (that things are deadly serious, that what is at stake is our very survival), but just the same… (I don't really believe it, I'm not really prepared to integrate it into my symbolic universe, and that is why I continue to act as if ecology is of no lasting consequence for my everyday life)" (p. 35). These responses can be witnessed in the populations of the contaminated territories as well as in humans living far away. I see them in myself, each day, as I go about my living. The IAEA (2006) reports a fatalism in the Chernobyl affected population which shows in a combination of anxiety and overprotection on the one hand and reckless behavior on the other including the purposeful "consumption of mushrooms, berries and game from areas of high contamination" (p. 39). How does a North American respond? By consuming more? By buying a Hummer to demonstrate one's powerful potency? By hoping and trusting that the 'experts' will find a solution? By saying 'not in my lifetime'?

If an event like Chernobyl (or ecological crisis, or war, or AIDS, or hungry children in our classroom) can disturb and derail what seems most daily, most normal, most true, about day-to-day living, where does this leave a pedagogical response? Žižek (1992) suggests it is in none of these frantic conditions or denials, but in understanding it as part of "our very *condition humaine*, without endeavoring to suspend it through fetishistic disavowal, to keep it concealed through obsessive activity, or to reduce the gap between the real and the symbolic" (p. 36). While Žižek's words might come as a relief – it is not all up to me! – there is more going on in the unconscious and mythical realms than can be 'grasped' or controlled and the question remains of responding practically through this teaching work, and not merely through 'theory.' If as teachers we do attempt to consciously and courageously face (recall, not turn our backs) this 'crisis' without recourse to hurrying, scurrying, saving, or putting all our faith in science or politics to 'save' us or the world in the future, what will happen? What if the 'sense' in the work of teaching collapses, what will be there? Mere emptiness? Will I feel thrown off the tracks of time proceeding into that progress/growth future? Facing the looming monster named Death, that is Chernobyl, it becomes difficult to believe in those practices and in that future and those meanings around which so much of teaching work is conceptually shaped. What am I doing there then? I might feel like I am going crazy. Slipping off the edge into an abyss, into the human condition and existential uncertainties. What is human? Why are we here? What time is it? Where are we? What do we do now, separated from all these various certainties that have given shape and meaning to this work (whether that be preparing for work, or citizenship, or social justice)? With what attitude to proceed in one's pedagogical practice? What would a school that was mindful of Chernobyl look like? In facing Chernobyl I must face my vulnerability and mortality, not just my own, but of the earth. Each day, eating, loving, learning, fighting, dying, as humans have always done. Being alive. There is no place else to go. *Oh my sorrow...*

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out of sight, out of mind(fulness)?

> We dug up the diseased top layer of soil, loaded it into automobiles and took it to waste burial sites. I thought that a waste burial site was a complex, engineered construction, but it turned out to be an ordinary pit. We picked up the earth and rolled it, like big rugs. We'd pick up the whole green mass of it, with grass, flowers, roots. And bugs, and

> spiders, worms. It was work for madmen. You can't just pick up the whole earth, take off everything living.
>
> Ivan Nikolaevich Zhykhov, Chemical Engineer
> (Alexievich, 2005, p. 16)

Reading about nuclear waste and the difficulties of its present and future storage is enough to bring to mind the current North American obsession with 'storage solutions.' Stores abound with bins, baskets, containers, closets and organizers to help us control clutter and deal with our accumulation habits, that feeling of 'too much stuff' and nowhere to put it. Most who work in a school or a classroom are not strangers to the implications of this. There is *too much stuff* to manage or contain in any sane way. Is nuclear waste in some way akin to all that other stuff we are storing up? In need of 'storage solutions' to get it out of our sight, and in that case, out of mind so that contained it may be 'forgotten' and no long 'minded.' Making such a connection between these seemingly disparate things may not be a very great gap to leap, in fact possibly no gap at all, for nuclear power fuels economies, industries, production, and is therefore linked intimately with human consumption habits. Nevertheless, the gap lies not in the relationships, but in the difference in the kind of waste material we are trying to 'store': nuclear waste, in a way that other kinds are not, is "capable of radicalizing the impermanence of all life to the point of extinction" (Parkes, 1997, p. 123).

Radioactive waste problems are not limited to Chernobyl, or to the former Soviet States, but exist anywhere on earth where there are nuclear power plants or atomic weapons production. In this sense, Chernobyl does act as a *portent*, a visible monster that just won't go away, not stored in a tidy storage facility in containers out of human sight. It is a visible example of possible consequences. There are many more such examples around the world, equally unknown and 'forgotten.' Here on this continent, including in Canada, nuclear wastes are piling up above ground as it is debated how and when and where to bury them safely. Waiting for the storage solutions to come along, Deutch and Moniz (2006) admit that "no country in the world has yet implemented a system for permanently disposing of the spent fuel and other radioactive waste produced by nuclear power plants. … The most widely favored approach is geologic disposal, in which waste is stored in chambers hundreds of meters underground. The goal is to prevent leakage of the waste for many millennia" (p. 81). They encourage the oxy-moronic strategy of "extended temporary storage" (p. 83).

J.R. McNeill (2000) documents the wastes over the world from not only nuclear power but also from nuclear weapons production during the Cold War period. Nuclear wastes in the former Soviet Union were stored in Mayak, Siberia. There have been several serious environmental accidents there. "After 1958, wastes were stored in Lake Karachay. … By the 1980s, anyone standing at the lakeshore for an hour received a lethal dose of radiation" (McNeill, p. 344). The temporary storage of nuclear wastes from weapons production in the United States is also critical and continues to this day. It did not stop with the 'end' of the Cold War. A more permanent solution is not here. Indeed, the stockpiled wastes from nuclear weapons production are more serious than those from power plants. Everywhere, the amounts and locations are shrouded in official political secrecy and the consequences hidden from the public. The wastes from the past McNeill writes are "left for the future to worry about" (p. 343). The 'future' is the children in my classroom, and their children's children. In this time of uncertainty of not knowing what to do, what do I do? Kenneth Kraft (1997) writes that "the society-wide vigilance required to keep radioactive materials out of the biosphere now and in the future can also be seen as a kind of collective mindfulness." He cites Thich Nhat Hanh, saying that we leave a great debt to our descendents, and that nuclear waste is "the most difficult kind of garbage" and a "bell of mindfulness" (p. 274). I understand his words on an intellectual and philosophical level. I have not yet imagined or seen the possibilities and practicalities of working these out in my teaching practice. My classroom overflows with junk, both physical and metaphorical. I have too much work to do. It is out of control and unmanageable.

* * *

As the example of the Chernobyl Shelter reveals, nuclear waste is not easy to 'contain' and keep in its own place and time. Even if we build it a container, the monster threatens to escape, if not now, at some distant future time. Like a ghost, it might keep coming back to haunt us. Or rise out of its sarcophagus, or Shelter, or House, or Cover, or whatever we want to name the storage solutions. Lesa Quale (2001) tells the story of meeting Jill Molena at the Hanford Nuclear Project in eastern Washington State. The bomb that was dropped on Nagasaki was made at Hanford. It continued to be a site for power and nuclear weapons production until the 1960s and is now a dump, a repository for short-term storage (solution) of nuclear wastes. But this is also a post-atomic landscape where nuclear materials have been tested and radioactive tumbleweed thrives here. "Their ordinary appearance spooked me," writes Lesa Quale (p. 196). Jill Molena's job is to keep the tumbleweed from escaping, to drive the fences looking for rogue wandering plants blowing in the wind and to capture them. The tumbleweed must be constantly gathered and buried, lest its poisonous seeds escape into the 'world.'

Kenneth Kraft (1997) articulates his idea that nuclear waste is like a koan: "we have difficulty grasping the problem conceptually, and we flounder when it comes to practical action. There are no certifiably safe ways to contain radioactive materials, yet we do not even have the sense to stop producing them. So nuclear waste appears to be a problem without a solution" (p. 286). J.R. McNeill (2000) describes nuclear waste, including Chernobyl's as "easily the most lasting human insignia of the twentieth century and the longest lien on the future that any generation of humanity has yet imposed" (p. 313). So why did we produce them in the first place? Why consider this risk acceptable? Why continue to produce them, even though the Futures Panel suggested their unpopular (and unacceptable to the DOE) solution of never again making any more nuclear wastes? There is only the hollow economic answer of short-term benefits that outweigh long-term consequences.

The 'waste'land that is Chernobyl, reveals terrible paradoxes of 21st century living (for the wealthy few, that is). It is a symbol of the needs of industrialization, of the massive amounts of power required to produce and consume and cycle the wheels of capitalism, growth and progress. Where to get it in this time of 'climate change' terror? Will we turn to nuclear power if it is being promoted as cheap and clean? Electrical energy is rarely cheap or clean, wherever it comes from. When will it be enough? Contemplating this as a teacher brings increasing difficulty. Confusion. I ask the children if it is ok if we turn off one panel of lights in our classroom knowing that it is a symbolic gesture only. Or is it? They say yes, they can still see, it is fine. But it doesn't seem fine, this place of excess and paper and plastic and computers and grading and monitoring and crowding. It doesn't seem fine at all.

* * *

Global electrical energy requirements are projected to increase 160 percent by the mid-21st century. Nuclear power currently provides about one-sixth of the world's current electricity (Deutch & Moniz, 2006). The question of what Deutch and Moniz mean by "world" is a critical one. Who benefits from all this power in both literal and economic ways? The farmers and villagers around Chernobyl were still using peat and wood for heat and cooking. Where was the power going? Who needed it? This could be raised in every point and place. When I lived in New Brunswick, much of the economy/industry was fueled by nuclear power, some pulp and paper mills using as much as three million dollars per month of electrical energy, and yet so many of the people in that space live in crushing poverty. The benefits appeared neither widespread nor local. Robinson (1989) in her expose of the British nuclear industry and the Sellafield generator in particular, raises the question of economic justice, asking if a nuclear industry could exist in any place committed to economic justice. Certain industries (including nuclear, industrial production, chemical factories, and mines) gravitate towards places where people have less to lose. Poverty opens the way for industrial abuse (of power), where communities become willing to sell their body's labour at almost any cost for they have few choices and where they are likely in their need and fatigue to not protest. In this way, these places can remain out of sight and out of mindfulness for those with political and economic power (financial wealth).

Although nuclear power (and accidents) might ‘fuel’ parts of the economy, they have never been ‘cheap.’ All nuclear power plants everywhere survive on “‘insane’ economics of massive subsidy” (McNeill, 2000, p. 312). J.R. McNeill documents that when Britain privatized its electrical energy industry, no one was willing to take on the nuclear plants (or their clean-up). Deutsch and Moniz (2006) write that the only way nuclear power could be economically favourable is if a carbon tax is brought in to tax the pollution of other electrical energy producers. But regardless of cost, the nuclear industry is booming and business is good all over the world. There are now 30 reactors under construction, 64 planned, and 158 proposed, and by 2020 China hopes to quadruple its nuclear capacity (CBC News, 2007).

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ticking clocks, lines of time

On Wednesday, January 15, 2007, the board of directors of the Bulletin of the Atomic Scientists moved the hands of the nuclear Doomsday Clock two minutes closer to midnight, where it now sits at 11:55, or five minutes to midnight. Seen through their warning, the question of life’s continuance, except in some ecologically contaminated thinly diverse form seems an overwhelming impossibility for the future of life on the planet. This clock metaphor is powerful and troubling in the ways it invokes once again time envisioned as a line nearing its explosive, inevitable and apocalyptic end. The scientists do not offer another vision of time, nor do they suggest other timings are possible. They prophecy doom without offering alternative stories. This clock hints that midnight is the end and another dawn is not possible. Is it a metaphor that might grip in ‘our’ minds, because it is already *in our minds*? The atomic clock puts over 90% of time ‘behind’ us. And so little time ahead. That troublesome apocalyptic line of time suddenly draws itself across the surface once again. A horrifying and prickly thought enters my mind, as I read and study, and I see the scientists move the hands of the clock to their new places. Even as methods to store nuclear waste for many generations are investigated and contemplated, I realize that ‘we’ *might not really mean it!* What meaning does it have to say that 100 centuries of protection should be offered if the speakers do not *believe* that 100 future centuries will ever unfold? The question of the meaning of teaching in an apocalyptic culture troubles me now. It is not simply a question of attempting to deconstruct my teaching in relation to industrial and corporate realities, but of coming to terms with what is perhaps the driving underlying psychological reality of this cultural and economic context(s) I dwell inside. If thinking about Chernobyl is thinking about time and thinking about place, as a teacher, how might I guard my thinking, and purposefully and consciously attempt to imagine and construct multiple possible views of time and the future in my practice and relationships with children? Can I imagine a long-away future that is healthy and well for life? That I do not know the answer to this question causes me despair as I walk into the classroom.

The articulation of the idea that the line of time is running out is not limited to the Doomsday Clock in relation to nuclear conversations. It is a theme that is strongly (although in a non-threatening almost non-obvious form) written through the nuclear industry literature. Uranium for nuclear production is mined from deep in the earth. Rarely is the pollution from mining the uranium mentioned, including the radioactive tailings which also require special storage and clean up measures, nor is the fossil fuel energy used to bring the uranium out of the ground measured in the costs of nuclear energy. Canada is the world's primary uranium producer, currently providing about 28 percent of the global supply. Canada's known remaining uranium resources are worth U.S. $85 billion at current prices (CBC News, 2007), which makes the $1 billion dollar Chernobyl Shelter seem like a fire sale. Perhaps when priced on the international stock market, nuclear waste is worth it. Considering the long-lasting impacts of nuclear wastes as a byproduct of power or weapon production, or as tailings from uranium mining, compared to the overall supply of uranium available for power supply use, is *this* worth it? Are these risks all worth it to the future of life? And it is in the face of this question that the entire enterprise nearly implodes. The industry seems to express literally no belief in the long-term and future potential of life on earth. The World Nuclear Association (WNA, 2007), in reference to uranium supplies, defends itself against what it refers to as the "Limits to Growth fallacy, a major intellectual blunder recycled from the 1970s," and states that:

> It is commonly asserted that because 'the resources of the earth are finite', therefore we must face some day of reckoning, and will need to plan for 'negative growth'. All this, it is pointed out, is because these resources are being consumed at an increasing rate to support our western lifestyle and to cater for the increasing demands of developing nations. (WNA, 2007)

The WNA goes on to say that "of course the resources of the earth are indeed finite, but (...) the *limits of the supply of resources are so far away that the truism has no practical meaning.*" Indeed, they finally assure their readers that "the world's present measured resources of uranium in the cost category slightly above present spot prices (4.7 Mt) and used only in conventional reactors, *are enough to last for some 70 years"* (WNO, 2006a, emphasis added). Some energy analysts (Jan van Leeuwen and Philip Smith cited in Monbiot, 2006) estimate "that if all the world's electricity was produced by nuclear power plants, uranium supplies would last 6.8 years" (p. 96). 70 years is approximately the lifespan of the average human in the developed world. When this is considered the 'far away' time for using up the earth to its *limits without practical meaning*, how could such numbers reassure anyone who is hoping for lasting Shelter on this planet, not just for the human species but for the Others as well? And for this, the radioactive kiss in return for all future time.

If some adults on this time-bound planetary world have no hope and no faith for the future and are content to use it up in 70 years while creating millions of years of radioactive milk and body poisoning wastes....

...for those who work with young children, knowing that this time-line falls within their conceivable lifespan, although it exceeds most of ours except the very youngest of the profession, what is there to do but to live *through* this, live *in* this, and take it up as best we can?

four: *listening to Chernobyl*

on secrecy and hidden knowledge

Time: May, 2004

Place: Saint John, New Brunswick, Canada

Event: A friend visits from 'away.' As part of our touring we decided to visit the Point Lepreau Nuclear Power Plant which powers much of the heavy industry of the province, especially in the Saint John region. The guidebooks recommended it as a place to visit, and my students at the university related fond memories of family picnics under the reactors' stacks, with tables provided for community enjoyment. It was like a park, they said, with marvelous Atlantic views. We looked forward to visiting it.

The power plant was in the news often while I lived there. Badly in need of billions of dollars of upgrades and nearing the end of its 'life,' politicians and industry couldn't decide what to do with it. The local industry required the power it provides for the foreseeable future. The local people desperately needed the industry jobs. Not once during my time there did I hear about nuclear waste. Where is it stored? Where does it go? I didn't see it. Smell it. Notice it in any way. *And I never wondered about it at all.* In fact, the power plant did indeed seem cleaner than the coal burning electricity generator across the harbour from my apartment which constantly spread long draping clouds across the bay from its towering chimneys, the wind blowing it inland over the city. By contrast, the nuclear generator was invisible and silent.

The day of our trip was appropriately foggy, dreary and cool. The coastal highway drive was beautiful, rugged, rocky. We had followed the guide books driving directions but we couldn't find the exit where we were to turn off the main highway. We stopped at a tiny fishing village to ask directions. The non-descript road through dense forest was unmarked. The fog became thicker. We had to drive slowly. The trees were dripping and the ubiquitous lichen shone bright green on the trunks. We were almost there. I felt nervous and excited and curious. I had never seen a nuclear power station before! Suddenly a large welcome sign loomed ahead: "Visitors park here and check in." There were no other vehicles there at all. Only a tall and imposing fence, a gate, and a guard station. With three armed guards. One of whom came out of the station with an unwelcoming face and walked towards us. It all began to feel menacing and unsafe.

The visitor guides had not been updated. It turns out that visiting a nuclear power plant is a post-September 11th high security anti-terror impossibility. I ask them if there was a photo we could at least look at and was met with an incredulous stare. "No photos," they said, humourlessly. We pointed to the sign that welcomes visitors and asked us to check in at the guard station. They looked at it like they'd never seen it before. "Got to get them to change that sign," they said. "No visitors allowed."

We got into the car and drove away into the fog. We were both shaken. Shaking. Visiting a nuclear power station no longer seemed interesting or fun. It felt frightening and dangerous to be living close to one. If the 'source' of our electrical power needs to be hidden from view, fenced in, guarded by men with guns, what does this say about our time, about who we are?

While nuclear power continues to be promoted as 'clean and cheap,' the disaster that *is and continues to be* Chernobyl has been vastly underreported, shrouded in secrecy, often 'forgotten.' This is at least partially because it happened in what was the 'East,' a place that was walled off from the world at the time and felt far away and separate to people in the 'West.' Thus it could be dismissed as nothing to do with 'us.' The World Nuclear Association (WNO, "Chernobyl", 2006) claims that it was a "unique event," an accident and a flawed reactor, and therefore its relevance "to the rest of the nuclear industry outside the then Eastern Bloc is minimal." The country of Belarus, which was most affected by the fall out, continues to be run by a dictator and information there is suppressed. The Soviet Union collapsed economically, politically and socially soon afterward the accident and has since been faced not just with Chernobyl but with myriad other financial, ecological, social, and ethnic challenges. But to blame what seems like wide-spread lack of mindfulness about what continues to be the greatest environmental accident of all human history on these factors alone seems shortsighted (and maybe a bit hopeful). It might also reveal in very direct ways the consequences of human faith in both science and technology, which allows Chernobyl to be 'left behind' on that line of time, while the 'world' moves forward into a better (read 'progress') future.

This faith in science and technologies, as well as the political and economic suppression of 'truths' might particularly have specific implications for the work of teaching as both an ethical and intellectual labour of attempting to live honestly and wholly in the world with children. Like the Point Lepreau power station being 'hidden' from view, in the deep dark forest, the Chernobyl accident was shrouded in secrecy from the beginning. We know it is there, but it is far enough away, inaccessible enough, that most of us cannot actually look at it with our own eyes. My friend and I, in attempting to visit the generating station, found ourselves abruptly face to face with the violence and secrecy inherent in this system. Not only is the place of power production guarded, but also it was kept secret, behind a fence, unseen, at the end of an unmarked rural road. Remembering this place would never mean literally 'facing' it. On the other hand, what a person *faces* there is the inconceivable amounts of energy required to maintain the industrial life of the place, an amount of energy vastly out of proportion with the local human population. Not being able to see the source of the power further highlights the ways the means and methods of global production, everything from a power plant to its byproducts like toilet paper, remain hidden from day to day view, or in this case, completely hidden from view and inaccessible to regular citizens (and consumers). This distancing represents a dual danger: on the one hand, from the threat of invasion and terror, and on the other an easy forgetfulness in consumption that these goods (and warm homes) produce wastes that endanger uncountable future generations, those connections to the future through a continuity of relationships, both fragile and irreducibly vast.

This separation and secrecy might create both a lack of citizen engagement in both processes and knowledge, and a worshiping and trusting of 'expert' culture and knowledge, particularly in physics in this case. High-level decisions, high-level science, high-level wastes: it all seems remote, complex, and so incomprehensible that many of us might feel like we have no right or competence to speak about it, and also that it is all best left to the 'experts' or those 'who know' which excludes most of the citizens of the planet from having any say at all over what is going on, or any way to really influence this 'future.' There is no doubt where the 'power' lies. But leaving this to the 'smart people' is now an impossibility – never before in human history is there a cultural and scientific knowledge that must be maintained and continued into the indefinite future. Our children's children's children will need to know about it, how it works, how to 'manage' the wastes and possible accidents. There seems no good model or record in the historical past for such cultural knowledge being continuously passed down for such long periods of time and through so many generations and cultures at once. How did the Egyptians build the pyramids? How did the people of Easter Island erect their giant heads? What is the true meaning of Stonehenge? Human cultures shift and change ecologically, always moving and transforming in and with the landscapes, yet now there is this technology that outlasts the lengths of any human society ever to have existed. For educators, this raises questions about the nature and timing of knowledge and learning. Unfortunately, the contemporary educational climate seems to preclude long-term thinking, in the focus on preparing children for a short-term future. Even my own school board declares its plans "for advancing students' progress toward reaching the Ends" as a three year plan ("Summary: Three Year Education Plan 2006-2009", n.d.). As teachers, we are kept impossibly busy by the technocratic and bureaucratic demands of this system including constantly learning new 'methods' and technologies, that the possibilities for time for real thought, reflection, mutual dialogue, asking questions and exploring other options seem nearly impossible.

Ben Okri (1998) writes, "there are many ways to die, and not all of them have to do with extinction. A lot of them have to do with living. Living many lies. Living without asking questions" (p. 52). For a teacher, part of whose work is to think about knowledges and cultures and learning, I am left here at a confusing crossroads without a map or guidebook to what is hidden and locked behind gates, guards and fences. It seems important to consider (in education), in light of the cult of experts that surrounds me, the overwhelming faith in science and technology that guides so much of the cultures I live and work in. I do not know if it matters to think about this, if it lends any courage or opens any of those roads for possible ways to work. In the case of Chernobyl, even experts and media have continuously been 'silenced' for 20 years and their voices have mattered little.

To *listen in the moment* to the story of Chernobyl, rather than to the yet unlived story(s) of the future, is to remember the ways busyness and forgetfulness in living unfold without awareness, the ways great acts might be kept secret or rendered by language into 'no big deal.' Chernobyl was at first hidden by the Soviets, and since then by the Western nuclear power industry as well. Sanitized versions of the accident abound, placing it in the distant past, and of no future concern, erasing its space of current *presentness* on the planet. It is with us still, not in the past. The phenomenological version of the story from the people who experienced it, and continue to experience it, might disagree with this, but it is nearly impossible for their voices to be heard. Dr. Adolph Kharash, the science director of Moscow University, who has become a Chernobyl 'activist' writes about how for several months after the accident not one word of what happened to the city of Pripyat was in the Soviet media, although the entire city of more than 50,000 inhabitants was permanently evacuated within 36 hours after the accident (Kharash, n.d.).

There has been political 'fall out' with both personal and social consequences, for those who have attempted to speak or write about Chernobyl in the former Soviet states. Svetlana Alexievich (2005), a journalist from Belarus, has written an extensive oral history documenting the disaster and its impacts on diverse peoples (children, scientists, farmers, medical staff, journalists, etc.), communities and the environment. She traces her way, through conversations with people, the ways a regime of silence and misinformation was maintained about the accident. Soviet citizens had faith in their government, science and media to tell the truth, to warn them if something was wrong. Scientists tell of warning their friends, colleagues and family, often in secret, about what was going on and how to 'save' themselves, but report that no one would listen to or believe them, saying that there was no official warning so how bad could it be? Svetlana Alexievich continues to live in exile in France because of her

Chernobyl investigations and writings and also because of her former writings on the Soviet invasion and occupation of Afghanistan.

In 2001, Western papers reported that a leading scientist and former medical dean from Belarus, Dr. Yuri Bandazhevsky, former rector of the Gomel Medical School, (Gomel is one of the areas most affected by radioactive fall-out) was arrested and sentenced to labour camp for his research studies about the effects on Chernobyl on children in the region (Times of London, 2001). He was reportedly arrested after sending President Alexander Lukashenko a letter complaining about the handling of the post-Chernobyl nuclear clean up. He was charged under Belarus legislation "On Urgent Measures for the Combat of Terrorism and Other Especially Dangerous Crimes" ("Belarusian Scientist", 2005). The Belarus state continued to insist that his arrest was due to accepting bribes from students and parents, but no evidence was ever produced in court. He was treated poorly and was in ill health for several years. Many international appeals were made on his behalf, and he was adopted by Amnesty International as a prisoner of conscience. He was released on parole in 2005 after serving four years of his eight year sentence (Amnesty International, 2005; The National Academies, 2005).

After the explosion, the winds shifted to the northeast carrying the radioactive clouds of dust and smoke towards Moscow. Soviet authorities decided to seed the clouds in an attempt to force it to rain before the radiation could reach Moscow. Whether this worked or not, a heavy radioactive rain did fall on the towns and natural areas "of the Bryansk region, just across the Russian border from Chernobyl. The highest Geiger counter readings were measured, as they still are, in and around the city of Novozybkov" (Macy, 2000, p. 263). As in other situations near the accident, the citizens of the city of Novozybokov were not informed about the radioactive rain at the time, or warned in any way to take precautions. Vasily Borisovich Nesterenko, (Alexievich, 2005), former director of the Institute for Nuclear Energy at the Belarusian Academy of Sciences, describes the time after the accident as "a conspiracy of ignorance and obedience" (p. 213).

For educators, the unveiling of all this secrecy, ignorance, obedience, and lying might raise concerns about our own work and working conditions. Who is to say that life is so different here? In these 'public' institutions called school there are now many constraints on speaking, many of them very subtle, some of them under the banner of 'professionalism' – offering a choice of only complying or leaving. The trust in the State and in Science, the troubles that speaking out might bring to individuals is very clear and obvious. When I publicly raised concerns at a meeting and expressed questions about the implications of teachers having to do what they felt was ethically wrong, we were told that teachers have always had to do things that they have felt were wrong. End of discussion. It seems that to question the operations and orders in any meaningful way, to create a dialogue, is nearly literally impossible. Teachers are muzzled from conversation with parents, for example, about speaking of our concerns about the new 'reporting' measures. Instead, we are told to give out information brochures. There is almost no (or perhaps none at all) public place/space/time for creative dialogue or to question the way the institution operates. If schools were participating in a dialogic civic role in a democracy, what would that 'look like'? Would it include a kind of mutuality between families and schools, signifying an honesty and truthfulness, a mutual facing of the world that is our home, a conversation about the lives of children and their future(s), beyond thinking how to 'fix' them or it? It might deconstruct – undo – much of the construction of schooling if such a conversation were to take place (on more than the happenstance occasion, in a more generative and structured and purposeful inquiring way). The case of Chernobyl shows the ways that the 'real' world is hidden, covered up, in favour of dishonesty and lies from civic authorities. There was a great public unawareness of the events unfolding around them, falling onto them, about which they ultimately had no control, but could have participated in had they known it was happening. The more I read about nuclear industries and technologies, the more I realized that this was not a Soviet or Cold War problem. Even in democracies, especially now with multinational corporate influences, governments do not always have a good history of honesty and good intentions. Robinson (1989), who explores the Western untruths about nuclear power using the Sellafield reactor in the UK as her subject, asks: "Why do we persist in assuming that any government has the welfare of the mass of its people as an object, where neither history nor present experience encourages this idea?" (p. 9).

Is there even a chance that schools, as one of the remaining 'public' institutions of the democratic vision, can still become sites of dialogue and mutuality, generatively imagining futures for the world? Might a school be envisioned "as a forum in civil society where children and adults meet and participate together in projects of cultural, social, political and economic significance, and as such to be a community institution of social solidarity bearing cultural and symbolic significance" (Dahlberg, Moss, & Pence, 1999, p. 7). As a contemporary teacher, such an idea, such a thought, might keep me working towards such possibilities in my day-to-day work and life. But on the other hand, I feel a growing despair at how far away such a possibility seems in this time of regimes of political control of education and discourses of controlling and fixing children, always measuring and diagnosing them. A sense of teacher and child agency is utterly denied in these processes. Diverse voices and perspectives are silenced, and ways of being culturally and spiritually are not important under regimes of science, or discourses of control. It doesn't matter if a child comes from Bosnia, Iraq, China, Eastern Europe, or a local neighbourhood or city racked with poverty and despair. One size fits all (or fall behind!).

One of the most disturbing aspects of reading the Chernobyl literature has been to see the ways that the 'victims' are criticized for behaving like 'victims' and not having a sense of agency or control over their own futures, not being able to leave it behind them in the past. The people writing these reports assume that the 'victims' have multiple possibilities and choices for their lives, those that come with wealth, education, power and privilege. And indeed perhaps we see this globally. Very few of the world's six billion citizens whose days are occupied with surviving and eating have the opportunity to in any way be involved or knowledgeable in these questions, or to have any say. (And a few of us are very busy with consumerism, storage solutions, home improvement projects, self-help and diets). A very tiny minority of politically and economically powerful people are making very big decisions affecting the entire planet and its future, disproportionately affecting women, children, aboriginal peoples, and the marginalized nations of the world whose resources are being literally stolen.

on losing faith

Slajov Žižek (1992) writes that the "reign of the discourse of science … has become today a menace threatening our everyday life" (p. 36). Chernobyl, like any human or non-human environmental disaster, illuminates the powerful depth and breadth of this faith in science, a mythology which leaves us utterly unprepared politically, scientifically, economically and spiritually in daily living for its possible consequences which in this case was the *real* future. Dr. Zoya Danilovna Bruk, an environmental inspector who wrote her PhD dissertation on the ecology of bees, an educated person like so many who might have 'known' or understood the potential impact of nuclear technologies, reflects on the psycho-intellectual impact the accident had on her: "At that time my notions of nuclear power stations were utterly idyllic. At school and at the university we'd been taught that this was a magical factory that made 'energy out of nothing,' where people in white robes sat and pushed buttons. Chernobyl blew up when we weren't prepared" (Alexievich, 2005, p. 168). In this way, Chernobyl stands as example of the unpredictable and uncontrollable shadow side of the discourse of science. In that one explosive moment of the accident, the menace revealed its face and the hope and faith of the Soviet scientists and citizens in the power of nuclear energy (and weapons) to raise them up on the ladder of progress was shattered. The promise of progress collapsed dangerously inward on itself. While Chernobyl may metaphorically represent a kind of outer apocalypse, for the Soviet Union it was also an inner apocalypse, a loss of faith in both the state and its secular religion: Science. Chernobyl flowed like a river of poison through the scientific establishment, dissolving faith in the purpose of their work and leaving it empty of meaning. There is no secure foundation when facing Chernobyl: "that unrepresentable point where the very foundation of our world seems to dissolve itself (Žižek, p. 37). Marat Filippovich Kokhanov, former chief engineer of the Institute for

Nuclear Energy of the Belarusian Academy of Sciences actually uses the phrase "collapse of faith" to describe the post-Chernobyl psychology in the Soviet Union, saying:

> So here's the answer to your question: why did we keep silent knowing what we knew? Why didn't we go out onto the square and yell the truth? We compiled our reports, we put together explanatory notes. But we kept quiet and carried out our orders without a murmur because of Party discipline. I was a Communist. I don't remember that any of our colleagues refused to go work in the Zone. Not because they were afraid of losing their Party membership, but because they had faith. They had faith that we lived well and fairly, that for us man was the highest thing, the measure of all things. (Alexievich, 2005, p. 167)

Similarly, another Soviet nuclear physicist, Valentin Alekseevich Borisevich, also from the Institute of Nuclear Energy at the Belarusian Academy of Sciences, calls the pre-Chernobyl time "the cult of physics, the era of physics." But, he says, "the era of physics ended at Chernobyl" (Alexievich, 2005, p. 183). He speculates that the philosophy driving such science leaned heavily on the myths of science fiction stories that emerged from visions from 18th century industrialization; apocalyptic stories that foretold the coming end of the earth as a rehearsal for humanity preparing to leave the planet earth, to master different times and places, and move away from life on *this* earth. Chernobyl revealed the impossibilities and lies in this story, yet for the local people left a virtual emptiness, vast spaces of uninhabitable place from which there is no extra-earthly escape. But despite Chernobyl, the progress timing of science continues to reign. Borisevich (ibid.) names our time a "new dictatorship of physics and math" (p. 185). Barbara Adam (2004) writes about how some citizens of the planet have grasped the depth of these issues, the serious nature of the questions, which manifests in displays of public protests and concern, but that "a significant number of scientists are aware but pursuing powerful agendas that bracket those unsettling ideas and concentrate instead on seeing their work as part of the solution, that is, the route to a new and better destiny" (p. 147).

The assumption of scientific and technological progress that underlies the scientific enterprise is blown apart by Chernobyl, leaving a literal and gaping smoking hole in the earth. Thinking on the timing of it unveils its timely impossibility for human minds. Even in the discussions about the new Shelter, supposed to last for 100 years, is the assumption that a scientific solution will ('must') be forthcoming (assuming no apocalypse). Never suggested that there may not be one indicates the continued strength and power of this faith in scientific progress. The use of nuclear technologies, perhaps even more than most sciences, is based on the assumption that our 'progressed' descendants will be able to assume this debt, financially, technologically, socially, spiritually, politically or ecologically. Can the future be trusted to science? Do we have faith in our own species to care for these wastes? What if the next generations do not know what to do? What if all future science is not good enough, not 'progressed' enough? And what about the stability and (non)enduring nature of human politics and cultures, or for that matter, in political processes and so-called democracy (or market processes?)? Again, the modernist idea of progress would maintain that first of all, the politics and cultures of the future would be more 'evolved' and therefore capable of handling this, and also, that no future 'Chernobyl' could then possibly occur.

The stories and words of these scientists raise questions about the secrecy of these industries in relation to the scientific faith in these technologies as well as the difficult kinds of knowledge and expertise involved in creating and maintaining such places both of production of power and weapons, and the resulting wastes. While my friends and colleagues in New Brunswick spoke fondly of pleasant and playful picnics under the shadow of the nuclear reactor, the so-called 'new reality' is that our 'power source' requires men with guns and high security fences and the 'public' no longer have access or contact with these places, and therefore possibility even less engagement with their meaning.

I am personally unable to make sense of such secrets and lies for the meaning of my work as a teacher of young children. Charged with preparing them for the 'future,' when their future seems increasingly uncertain, filled with multiple possibilities for further ecological catastrophe, beyond the one we are living in, what is there to say or do? As teachers we are asked to 'teach' children about conservation, about climate change, and on the other hand, we are being 'offered' the solution of Nuclear Power. The very fact that even here in Canada we are being lured towards the creation of more nuclear power, again with the 'clean' promise, without proper civic and democratic dialogue might alert us to lying and cover ups. It seems likely that future life will be difficult for more people than today, even a struggle for those few who enjoyed the luxuries of the West in the late 20th and early 21st century, those who created such havoc, such hope in the future. Is there a place between faithfully continuing and despair? Perhaps arising from a meditation on this question *is* the day-to-day work of teaching. To work to create an un-apocalyptic vision, but what then? Tomorrow is always tomorrow, the future will never arrive as predicted or planned, but remains always and forever in the future. But today, today... *what shall I do? how shall I think? how shall I act?*

war ecology

Among the daily and seemingly mundane 'secrets' of nuclear power is that its deepest connection is to war, in the invention of the atomic bomb. It was not until the 1950s that atomic technologies were put to civilian use. Atomic weapons are created from the byproducts of nuclear reactors, so the production of power is put to a dual purpose. Chernobyl, and other similar Soviet reactors, produced weapons-grade plutonium for nuclear bombs. The radiation released in the explosion was "the equivalent of 350 atomic bombs dropped on Hiroshima" (Alexievich, 2005, p. 213). Grigori Medvedev (1993) was a Soviet nuclear engineer and department chief in the Directorate for Nuclear Energy. After the accident he was called on to assist with the crises. He has since written extensively and revealingly about Soviet era nuclear programs, tracing the way power reactors like Chernobyl's were directly implicated in the military economy, and the ways that during the oil crisis in the time of the Brezhnev regime, the Soviet states required massive power supplies for industrial and population use and so rapidly grew the nuclear 'solution' to provide power. In Canada where we pride ourselves on our peaceful image, no matter how false, we remember that the plutonium India used to test its first atomic bomb in 1974 came from a Canadian supplied reactor (Shrader-Frechette, 1985). Or that much of the world's uranium supply, used in both reactors and weapons, continues to originate from Canadian mines.

That the nuclear power industry has deep and entwined relationships with war, corporate globalization, the oil industry, and imperialism are connections mostly silent and silenced. They come to light now and then when there is international debate about what kind of access nations like Iran and North Korea should have to enriched nuclear materials. Brazil is also currently constructing a new enrichment facility to fuel its reactors. In a radical re-writing and repetition of colonial global human relationships both east-west and north-south, it implies that some know how to use and deserve to have nuclear power and others do not. Under this current regime, some people and nations are viewed as irresponsible 'children.' Nations are divided into the deserving "fuel supplier countries" and "fuel user countries." Fuel users are defined as those who do not produce their own enriched uranium, whereas suppliers are those who have nuclear weapons and will control and sell the enriched fuel to the user countries. Suppliers include the USA, Russia, France and the U.K. These nations would prefer to see nations like Iran, North Korea, and Brazil remain "users" and not producers. On purchase, fuel user countries have to sign an agreement with the suppliers to return all wastes to them afterwards so that user nation cannot create atomic weapons with the materials (Deutch & Moniz, 2006).

Yet this connection to war can be traced even deeper, into more unsettling ecological territories. In a terrible double irony, refugees from conflict areas are now moving into, *settling into,* Chernobyl's contaminated zones. Belarus, one quarter of which remains contaminated, is becoming *home* to fleeing Russian refugees from former Soviet states, mostly Chechnya and Armenia. They were promised work and free housing if they would occupy this territory (i.e. abandoned farms near The Zone). In fear, they express the thought that they might be a medical experiment on the effects of radiation on human beings, but on the other hand articulate that they prefer this slow death to a possible fast one in places like Grozny, where ironically they point out, they were also surrounded by chemicals and factories producing terrible amounts of pollution that made their children ill (Grünberg, 1997). An Armenian woman says that "it's better to die from radiation than from a bomb. We knew that there was radiation here. But we were not afraid. Death comes slowly here. There it comes right away" (Grünberg, 1997). Their children swim and play in the river running with Cesium, radioactivity warning signs looming large above them. They laugh and ignore it. These refugees left one shattered place to arrive in another, seeking shelter and home. While conducting her research on the history of Chernobyl, Svetlana Alexievich met many of these refugees. It was unexpected and personally devastating to her as a researcher, encountering them living in the homes and farming the contaminated lands abandoned after the accident, refugees replacing refugees:

> People are already living after the nuclear war – though when it began, they didn't notice. Now people come here from other wars. Thousands of Russian refugees from Armenia, Georgia, Abkhazia, Tajikistan, Chechnya – from anywhere where there's shooting, they come to this abandoned land and the abandoned houses that weren't destroyed and buried by special squadrons. ... All the talk about how the land, the water, the air can kill them sounds like a fairy tale to them. ... These people had already seen what for everyone else is still unknown. I felt like I was recording the future. (Alexievich, 2005, pp. 239-240)

I felt like I was recording the future... when is the future? Under the gaze of Chernobyl's terrible countenance, the meaning of time shifts, stretching out over generations and yet making the unknown future present already as radioactivity, an enduring part of the landscape. And yet, for these refugees, this silent and invisible danger is preferable to the overt and visible terrors from which they have fled. The story of these refugees also illuminates an extraordinary human trait that may be required for continued life on earth, one that under the progress vision might be considered unthinkable and distasteful: as a species we are adaptable, we can become used to anything. We go on, in calamity. We adjust and can live in many diverse environments and call life 'normal.' In surviving, we are *alive.* Slavomir Grünberg (1997) encounters a refugee from Grozny, living with her family on an abandoned farm, who tells him: "In Grozny we had gas, electricity, running water. But here there is none. We have to get water outside. We've gotten used to it. Probably anyone can get used to anything. Life is life."

On the other hand, this shoulder shrugging "life is life" attitude might be interpreted by some as a blip in the line of time, as a necessary anomaly on the path of progress, as necessary suffering towards a greater and more advanced world. Or perhaps even as a valiant and fortified attitude, pulling up one's boots and getting on with life. After the terror attacks in the early 21st century, there was often the call by politicians, echoed in the media, to 'get back to normal.' In fact, I believe Americans were told to keep shopping, consuming and using their freedom to show that the terrorists had not won. The word normal (L. *normalis* OCD, p. 991) means to continue as usual, to conform to a standard or pattern. *Life is life.*

the children, the teacher, the world

As a teacher, these questions sometimes worry at me, wear at me. Not because I hope that schools can be sites of transformation of the world. Perhaps they can, and perhaps not. Even here, today, from day to day, life is life. Rather, they worry at me because in meditating on Chernobyl a certain hidden curriculum in my own classroom and work is uncovered, one that conceals itself in the benign language of education and development that so focuses schools, even perhaps in the use of the language of economic and social justice, yet it emerges from the shadows as a spectre of violence, war and toxic wastes The question of increased nuclear power in a time of global climate change presents itself entwined in the global structures of geopolitics, oil, power, and war. How might this be interpreted in the context of the work of teaching? The school I teach in is officially a 'Peace School,' yet the voices from the shadows whisper that I may be unconsciously 'preparing' these relatively wealthy and privileged 'developed world' children to participate in a future of global power brokering of a kind and scope never before experienced in human history. Remembering this future leaves me in a state of mourning, *memor*, of profound unknowing about this work, without language and knowledge to speak of it.

And yet, as I wrote this chapter and worked in the classroom in the same time, I noticed a strange paradox. My stress at work started to dissolve. I noticed that I felt more peaceful, more energetic, more purposeful. The classroom feels more intimate now. The children seem to have more presence, more body, more wondrousness. I feel more patient. I started to relax. All the things that were scaring and distressing me – achievement exams, the new assessment procedures, how my bulletin boards look, if I am planned perfectly for tomorrow, recede into meaninglessness when *I* face Chernobyl. The fear empties out of me and the world rushes in. Life feels more real. I feel more alive. I realize suddenly that I am tired but not afraid. My awareness has shifted. I did not see this coming. Life is life. Moment to moment I sometimes can accept it for how it is, not for how I wish it could be. I looked at Chernobyl and tried to understand it, and I could not change Chernobyl but it began to change me. Žižek's words – Chernobyl as *the cut that derails* – takes on a new meaning. While facing Chernobyl, nuclear waste, weapons, or ecological crisis might cause anxiety and psychological and spiritual suffering, so did those meaningless institutional tasks and purposes that were distracting me and stealing my time. I suddenly realized that when I was thinking about Chernobyl, I didn't think about those other things *at all*. Free of them, they became priorities that don't matter, to life, to children, to meaning, to being. My sense of time was changing, not in an academic way, but in a personal and embodied way. I realize that teaching in a 'Peace School' is about remembering Chernobyl, shifting priorities, not to a focus on peace, but to a focus on *life*.

While writing this, I was working on a project with my students about the United Nations Conventions on the Rights of the Child. I often asked them which was the one that meant most to them, and their response was overwhelmingly the same: *You have the right to be alive*. I realize now that it is the educational (and cultural) vision of the 'unreal' future that repulses me far more than Chernobyl. I realize that the future, in which children have *the right to be alive*, will forever now be a nuclear future. *What time is it? Who am I?* I realize that if I cannot 'face' Chernobyl (or climate change, or AIDS, or suffering in this city where I live, or extinctions) how can I face the children who come into this classroom each day whose future is this shared reality? Not the mythical future of ever-expanding growth and progress, but the real future burdened with ecological stresses beyond what has yet been experienced or imagined.

During the day, as I watch the children in my class playing and learning and engaging in conversations, I recall the words and stories of the teachers and children who experienced and survived Chernobyl. An unnamed child says:

> The sparrows disappeared from our town in the first year after the accident. They were lying around everywhere – in the yards, on the asphalt. They'd be raked up and taken away in the containers with the leaves. They didn't let people burn the leaves that year, because they were radioactive, so they buried the leaves. The sparrows came back two years later. We were so happy, we were calling to each other: 'I saw a sparrow yesterday! They're back.' The May bugs also disappeared, and they haven't come back. Maybe they'll come back in a hundred years or a thousand. *That's what our teacher says. I won't see them.* (Alexievich, 2005, p. 218, emphasis added)

Lyudmila Dmitrievna Polenkaya, a teacher who survived Chernobyl and was evacuated from the Zone, described the experience for her as the opening of an abyss. She realized that "a few people could kill us all. They weren't maniacs, and they weren't criminals. They were just ordinary workers at a nuclear power plant. When I understood that, I experienced a very strong shock. Chernobyl opened an abyss, something beyond Kolyma, Auschwitz, the Holocaust" (Alexievich, 2005, p. 185). Joanna Macy (2000) relates an experience where she met a school superintendent who carried a Geiger counter in his car so he could tell children where not to play. She met a school principal who has wall-papered his office with pictures of a forest, because they will not be allowed back into the nearby forest in his or even his grand-children's life-times. Such stories are not in the official records and reports of the United Nations or the Atomic Energy Commission.

I think of those teachers and children who fell into this abyss, their lives forever derailed by the cut that is Chernobyl. How could these teachers face their students after this? What did they believe they were now preparing children for? What teacher voice is possible in a post-Chernobyl world? What do we say to children? Do we tell them the truth?

I imagine being this teacher, telling children such a thing, that he or she will not see the May bugs ever again. But then I think of how this is happening today, and I *am* this teacher. It is not a different world. And I do tell children such things, and even when I don't tell them I think them. We study animals together and the children ask about extinctions, they worry about polar bears and coyotes. They rescue spiders. We catch a wasp that has gotten into the school and put it in a container. We look at its hairy legs and body, and at its miraculous eyes and wings, under the microscope. Some children are afraid of it. We have a long conversation about keeping it to study – *it would die* – or about letting it go – *it would live*. Let it live, they say, let it live. *You have a right to be alive.* After school, I go out to the trees outside our classroom and release the wasp. The children do not want life to die. Although they are still very young people, they are aware of the collapse of life systems that support the existence of living creatures on the planet. They are aware of the impermanence of life, and it is right here in our classroom. These children who will assume this debt from the past without consenting to it, and quite possibly without benefiting from it.

While children born in Belarus, Russia and the Ukraine survived the Chernobyl zone, Canadian children are invited to visit the "Kids" Zone' on a Government of Canada website of the Atomic Energy of Canada Limited (a crown corporation for the marketing of CANDU reactors).[18] "Kids' Zone," a site specifically marketed with cartoons and games towards children to promote the use of nuclear power in the future. On a page named "Mother Earth Knows Best" nuclear power is referred to as an environmentally friendly energy source. Radiation is referred to as "natural" (which it is, but not in the ways humans are using it), neutralizing and naturalizing nuclear waste, and making it seem simple and manageable. And yet, here's the rub: "And someday," the site claims, "*we may be able* to follow a plan developed by Canadian scientists for the safe disposal of used fuel many kilometres below the surface of the earth in the Canadian Shield" (emphasis added). This "someday" plan is far in these children's future, perhaps as much as 60 years. These children themselves will be elderly, grandparents already. The link to this children's ("kids") site is from a link called the "Teacher's Lounge," hinting that we might as well relax and enjoy ourselves. I did not long to linger in this "teacher's lounge" on my country's government website, nor did I desire to usher my children into the "kids zone." I click it off in anger. I turn back to life. I find myself filled with desire to be here with children in this present time, right here, in whatever is happening in our space. To create a space for honesty and emotions and questions. Reading this website leaves me disturbed again by the untruths, by increasing discomfort with being involved at all in this profession, in service to this bureaucracy. What hope is there when the government already lies to children? "The secret content of our lives is terrifying. There is much to scream about. There are great polluting lies and monsters running around in the seabed of our century… Something is needed to wake us from the frightening depths of our moral sleep" (Ben Okri, 1998, p. 52).

curriculum as "first thoughts": on mindfulness and debt to the future

Remembering the scope of what happened at Chernobyl might be shattering to the educational project that focuses on the future of work and progress, to its shallowness, to its narrowed visions and hopes for human success, which never arrives. We lose perspective in the pressures to 'teach reading,' or obtain excellence on achievement tests in our competing, in our priorities and panics. Mindfulness about this event might open us to the future which has already been profoundly affected by this present. The obligation to future generations is seen perhaps most strongly in nuclear questions which tie time together with place. There is no other world to go to. The threat to the future of life is ungraspable and incomprehensible to the human mind, yet it is there, before us now. Chernobyl is already stealing the time of the future. It reminds us of our obligation to the future immediately present in our classroom, these children's 'right to life.' If we are preparing children for 'the future,' then what kind of future is this, what kind of humans will they be(come)? What kind of world? A question materializes: In facing these monsters, how will we, the *mutual* 'we' as humans, adults, teachers, parents, aunts, uncles, grandparents, friends, frame for children the human-human-life-earth relationship?

It is a question, now, in this time, of whether the time and space remains for teachers to engage in meaningful (and mindful) ways of 'facing the way that it is ' in the context of our work, or if the timing and placing of schools has become so narrowed that there is *no breathing room* left. Is there a way that our focus on the future could take on new dimensions, new perspectives, perhaps finding wisdom in diverse traditions, away from the Judeo-Christian apocalyptic timeline and the New Age 'now,' to orient this work with children, their lives and learning, their being and becoming?

In remembering Chernobyl we might ethically and ecologically come to new perspectives to orient our work with children and learning. Kraft (1997) suggests the practice of meditatively, in thoughts and living, putting the words "nuclear" and "ecology" side by side, as jarring as it might seem, because a "nuclear ecology" might provoke us to consider more seriously "present and future effects on the biosphere." He suggests that with such focus, "potential threats to beings and ecosystems would be a first thought rather than an afterthought" (p. 270). In this way, as a "first thought" Chernobyl has potential to have a profound effect on curriculum and on relationships in teaching and learning. This "first thought," might bring a kind of radical ecological thought to the work of teaching, creatively interrupting the tyrannical discourses of growth and progress (the unreal future). In this time of bureaucratic and corporate influences in our classrooms, that demands conformity and standardization, this practice might be philosophically engaged in as a purposeful strategy of interruption, as *first thought* of fostering diversity, creativity, art, beauty, creatively and courageously holding open spaces right here and now, that remember the future. This "first thought" might be represented as a mindfulness that listens to the future, an ethical stance grounded in time and place, one that purposefully "cultivates an awareness of future beings" (Macy, cited in Kraft, 1997, p. 271). Indeed, that we listen to the "argument from future generations" which would say that to threaten the health and lives of future living beings represents an inequitable burden imposed on future individuals without their consent, and is thus morally unacceptable" (Shrader-Frechette, 1985, p. 87). It becomes a question then of what consciousness infuses teaching and learning. One that remembers the future without defacing it? Filled with love for world and future generations?

A Chernobyl-remembering pedagogy might ask: *What is time? Where am I?* Allowing existential questions to circulate openly, mutually, in devotion and discipline to life itself, not confining life to one story line with that already predetermined ending. The collapse of meaning, the derailment of dreams, that might arrive in facing Chernobyl might open and deconstruct the very space we are in, not only to despair and confusion, which is part of the human condition, but also to different and diverse possibilities. In conversations that would go far beyond recycling, conservation, and the empty and frantic projects of 'recovery,' turning towards *living with* Chernobyl (or with climate change, poverty, AIDS, suffering), curriculum might become about love and remembrance. A curriculum about how we will make a home now and in the future for life on this planet. On behalf of future generations of beings, dare we imagine what seems impossible, that 'we' might survive, even thrive, as a species, without a future of increasing violence inflicted on the Others?

It is early summer 2003...

I am in the Edmonton International Airport, returning from a conference, waiting by the counter to declare my lost baggage. Nearby I hear soft crying. A group of a dozen young children stand there holding teddy bears. They look like ghosts, pale, wispy, exhausted. Their luggage has also not arrived on the flight and they are inconsolable and frightened. A young woman caregiver enfolds them in her arms, gently caresses their hair, whispers comfort and love in their ears. I hear them speak and I suddenly realize that they are the children of Chernobyl. Born years after the accident, they arrive for a summer of clean prairie air, strengthening their bodies' tissues with fresh vegetables and fruits and milk, with running and playing on uncontaminated earth.

In their faces we see the future. Chernobyl will come to meet us everywhere.

And so, in mindfulness, in heartfulness, in telling the story that we are ecological beings, that life is worthy of our deepest attentions, like plants following the warm breath of the sun, we might turn the focus of our care and our beings. We might hold out our hands in welcome. To the future.

4

Losing Wonder: Thoughts on Nature, Mortality, Education

Were our hopes to rely on perfect beginnings and ends, this would surely be cause for despair. But if hope, instead, is our messy, multiform continuance, then what we need is rather to mourn and laugh and dance until our flesh remembers how the world goes on.

—Kathleen Sands
(in Keller 1996, p. 134)

In previous chapters I have explored some ways the idea of 'progress' permeates, influences and orients the work, space, and time of teaching. In particular, my interest has been with the ways that a focus on ever increasing economic and industrial growth into the (imagined) future might distract from the work living within the limits of the world. In this chapter I reflect on some stories that illuminate what might happen when the forces of the shallowness of some contemporary educational processes and visions become exposed to the fleeting frailties and finitudes that are the depths and mysteries of life.

While living on the Atlantic coast I spent a lot of time walking by and watching the ocean. It seemed vast, incomprehensible, and different every day; calm and gentle, or terrifying and powerful. Its water molecules have been around the earth on currents and tides, spraying up into the air, evaporating and falling again, and making thick dripping fogs. The shore changes each day, imperceptively and sometimes dramatically through time, pebbles tumble, sand bars move, cliffs collapse, flotsam washes up on the tides. What is a human being here on this beach, where life itself is forever being swallowed by long time and great space and some kind of environmental grace? Yet while perhaps this great ocean *seems* somehow wild and timeless, and even the huge international oil tankers anchored off shore appear miniscule and insignificant as they swing back and forth with the massive tides, this moon-pulling, sun-sparkling, mysterious and powerful water that has the power to feed populations, crush rocks into sand, create weather, shape continents, and sink ships is revealing another story. The collapse of the wild salmon stocks or the approaching extinction of the whales in the bay are a daily reminder to those living nearby of the ecological implications of this industrial time. At the same time, the crushing economic struggles of the local people and the clamouring political and economic voice of 'progress,' growth, and the need for more robust economic competition, seemed to generate feelings of frustration, desperation, of time and space being squeezed shut, of breathless rushing.

The nature condition, the human condition, the teaching condition, they were not separate in this place. I began to struggle with my teaching and writing work at the university, feeling trapped in a dualism – indeed, a spiritual conflict – from which there seemed no escape. On the one hand, in my teaching practice and writing I was consciously attempting to pay attention to what was earthly and mortal, while on the other hand the conditions and purposes of the work seemed to ask me to ignore limits, relationships, and the obvious collapse of the local ecosystems in favour of promoting a narrow view of literacy and learning. In fact, the social and political undercurrent seemed to be that 'fixing' the literacy problem would 'fix' all other problems, and that therefore this must come first. Intellectually recognizing the sources of this dualism seemed no comfort in the actual practice of living out this life.

If human faith in progress, especially technological progress, creates "an impatience and even disdain for life, a contempt and defiance of our bodily, that is mortal, earthly existence" (David Noble in Fisher, 2002, p. 156), what does this mean for living and learning in schools where we are distracted by preparing children for the so-called 'real' world of workers and economic growth? This view which sees children as resources and subservient to the future human world implies a necessary separation or forgetfulness – at least symbolically – from the very real and natural world from which all bodies and spirits always have been born, sustained, related, and to which we all return. The distracting, distancing vision of preparing for the future, of rushing ever forward, may create a sense that our own mortality will never come, and always be postponed, we can feel and behave as if we, and the children we teach, are immortal. At least for the time being. But when these tensions and forgettings are ruptured by the present, by terror, politics, illness, or simply the struggles of day-to-day human relating, and we are caused to *face* our common earthly mortality, there might be 'trouble', for it might become literally impossible to continue with confidence certain educational practices and ways of being.

Rosemary Radford Ruether (1993), in reflecting on these dualistic thought patterns in the West, encourages a reshaping of "our basic sense of self in relation to the life cycle" (p. 22). In meditating on the profound interconnectedness of life and time, we might remember that our bodies, each one, are also recycled, like our garbage, like our breath, like the calcium in our bones, this wondrous flowing moving intimate kinship with life. Rosemary Reuther continues:

> The western flight from mortality is a flight from the disintegration side of the life cycle, from accepting ourselves as part of that process. By pretending that we can immortalize ourselves, souls and bodies, we are immortalizing our garbage and polluting the earth. (…) Humans also are finite organisms, centers of experience in a life cycle that must disintegrate back into the nexus of life and arise again in new forms. (p. 22)

In this chapter, I invoke three stories, one personal and two fictional, to explore a possible pedagogical crisis of meaning that might arise when the *real* world brushes up against the classroom, or teacher, in all its sublime wonder; a crisis of meaning that is at the same time a deconstructive opening and a prophetic call to change.

What is an education that can bear the wonder and mortality (limits) of the world?

one: *river walk*

The North Saskatchewan River flows through the prairie city of Edmonton. Walking paths lead for many kilometers along the river's banks. The water is wide and deep here, curving broad banks along deep forested ravines, under the downtown building-jutted skyline. Born hundreds of miles west, high in the Rocky Mountains, the river begins as a slow ice melt trickle. Under the glaciers, thousands of years of compressed snowfall gathers momentum, moving and grinding sand and pebbles. In the beginning, the icy water is bubbling shallow and bursting fast. Further on it deepens, widens, as many other waters join it, carving out a wide, curving valley through the prairie, supporting a huge ecosystem for more than one thousand kilometers. Humans interfere, now and then, here and there, taking water out, putting it back, damming and changing the flow. In the past few hundred years this river with its walking trails and towering office buildings was the colonizing way into the 'west' as David Thompson build a system of fur-trading forts across the continent and mapped out the land for settling Europeans. A carrier of story, this river also holds the "deep time memory" (Kostash, 2003, p. 52) of aboriginal peoples – the Peigan tell of the glaciers receding 12,500 years ago as the creator walked north. It has taken time for this river to draw its path here. But the geological history of this place exists in deeper and longer time, following the flow of least resistance in its yearning to join the other waters. This huge river is but a tributary, many waters flowing together and merging with the South Saskatchewan River to become the Saskatchewan, flowing eventually into Lake Winnipeg and draining towards Hudson's Bay. Where does this cycle begin and end, this endless flow of water molecules around the planet, through life?

One warm, but not-yet-too-hot, sunshiny day, leaves springing open, still that pale green rustling, I walked near the river. The smell of the clover. The sweet silvery wolf-willows on the banks. The poplar trees leaning over. A flash of pale blue in the undergrowth beckoned. Crouched low in the woods, springing up lovely from the forest floor, the clematis was blooming. I was glad to see it. Its petals tissue paper fine, purple-blue and near translucent, yet its stem is strong and stable in the breeze. In a few weeks it would be gone, transforming into miraculous fuzzy seed heads loosening their seeds for next year, losing them under the rotting undergrowth that is already preparing to spring up the wild prickly pink roses, fireweed, dogwood, new tiny trees. A delicate ecobalance thrives here.

As I crossed the old train bridge, two young boys stood close together leaning over the rails, looking down at some fly fishermen standing in their tall boots in the flowing water. *Are you going to eat those fish?* one yelled. They looked at each other and start to laugh hysterically. And then other yelled down, *Gross! When I flush my toilet it goes into this water! I sure wouldn't eat those fish!* They laughed some more. The fishermen ignored the boys and threw their lines into the water.

When I was eleven years old, about the age of those boys, my family moved from the city to a lake in a provincial park west of Rocky Mountain House. This blooming clematis flooded my body and senses with memories. My child mind awoke and remembered those first heady days of living there. The smells! The frogs! The insects! The forest! The sandy bottomed lake full of fat leeches and small minnows and hair snakes! It was all marvelous, endless places to explore and play. The grade six teacher assigned us a plant study project. We were to find a flower or plant, identify it from books, press and dry it and share it with the class. Off I went, into the forest, looking for a plant for my project. It was a sun burnt sappy pine day, warm pungence in my nose, the leafy light filtering layers of spring speckling me as I walked and looked. And then, there it was, the wild blue clematis. It was perfect. Beautiful. I learned its name from my mother and took it to school the next day.

The teacher showed us how to dry our flowers in salt, and several weeks later we removed them carefully – they were even more fragile now – and we pressed them onto cream coloured cards under clear plastic film. The clematis's tough woody centre prevented me from flattening it like we were supposed to. One of the leaves got bent over under the sticky plastic film and there was no way to pull it off. But I decided that I liked how it looked. It seemed special. Natural somehow. I loved how the folded petal meant that I could see both the front and the back of the petals on my card. The teacher asked for our cards. I handed mine in, sure he would be happy with it. Sure he would be happy *with me*.

It is the first time I ever remember receiving a grade at school, although I might have been given them in previous years. Our flowers were returned to us with a rubric. My brain was dizzy. How could I only have gotten 4 out of 10? Didn't my teacher like my flower? Didn't he like me? Marks had been deducted for the petal having a fold in it and I can't remember what else. Only the feeling of having the wonder of the experience crushed. The smell of the woods, of choosing the perfect flower, taking the assignment seriously, the crunch of branches and dried grass underfoot, the singing of birds. The assignment had made me love this flower, opened the wondrous forest floor to me in new ways, provoked me explore my new home. My whole body, city child turned country child, had opened to the full, sensuous, complex beauty of the forest. I had experienced the woods with awe, perhaps for the first time in my life with that wonder beyond words. My relationship with the clematis was something new, it extended through the whole forest, through all my senses. It became part of me. None of these things could be measured, and so a full and wondrous experience was instantaneously flattened, reduced to a folded over leaf failure. The teacher's response had exposed me to a pedagogical and social violence that I don't remember experiencing before that. It changed my feelings about school. The sensuous experience of encountering this flower – the clematis and my relationship with it – could not co-exist with the weight of the teacher's narrow rubric or our stuffy basement classroom. With a few lines on a paper, the teacher completed our (op)pression of the flower, objectifying it, severing it from the fullness of its surroundings. From the tall pale-barked poplar trees, the sun dappled earth, the sweet smells, the buzzing insects above, around and below.

I am so glad to have encountered this clematis again now, after so many years, in this new city, along this same river that runs through Rocky Mountain House. My body and senses remember this place, it feels familiar, like home. I am even glad to remember that teacher's response to my work, to have this chance to contemplate the meaning of this teaching work, and to be reminded to be forgiving of all of us, of the things we do as teachers, all those well-meaning and hopeful things like rubrics that we think make our jobs more organized and simple. I am glad to be reminded by this clematis of how unaware I might be of children's relationships and connectedness to the world, how easily I might crush a child's experience and wonder without ever realizing, how easily I might violate a child's relationship and trust in me as their teacher, that I might engage them deeply in a conversation with the world, and then rip it from then again in the name of mindless institutional processes.

> Wonder lies at the heart of what it is to be human: it places us directly and transparently in the face of the world in which we live with others. Wonder reveals things in a new light and tends to promote mindful and gentle regard for their inherent worth. (Hove, 1996, p. 437)

Questions come with these memories, haunting this walking path now. How might we as teachers share this wonder in our relationship with children? Learn to recognize it in the other and let it be, let it form and grow? What if it matters, in this time of great extinctions and global human suffering, what if it matters, to the future of life, that we learn to do this?

two: *re-reading Crow Lake*

Mary Lawson's evocative first person novel, *Crow Lake* (2003), set in a small northern Ontario farming community and Toronto, circulates powerfully around themes of family, home, community, and identity, and particularly how these relate to the death of the narrator's parents when she was a child. Written as a memoir, the story explores Kate's relationship with nature, with her family, their stories, her body and her memories. The story balances between Kate's early life, after her parents' sudden death in a car accident, when her older brothers gain custody of the younger children, and her life as an adult when she has become an ecologist studying the effects of pollution on freshwater pond invertebrates. Particularly significant to the story is Kate's relationship with her brother Matt, who often took her to the ponds near their home to learn the intimate exchange of life there. In sharing this place with Kate, he gifts her with his passion, experience and knowledge. Barely an adult himself at the time of their parents' death, Matt becomes not only Kate's caregiver, but also her teacher.

My interest in this story centres on a narrative turning point when the adult Kate experiences what she calls "a bit of a crisis at work" while lecturing at the university. She describes it:

> Anyway, this 'crisis,' if that isn't too dramatic a name for it, came in the middle of a lecture. It started as a minor hiccup. I'd been explaining the hydrophobic nature of the hair piles of specific arthropods to a lecture hall filled with third-years, and I suddenly had such a vivid flashback that I completely lost my train of thought. What I remembered was Matt and me, in our usual pose, flat on our bellies beside the pond, our heads hanging out over the water. We'd been watching damselflies performing their delicate iridescent dances over the water when our attention had been caught by a very small beetle crawling down the stem of a bulrush. (p. 197)

Derailed from the purpose of her lecture, and awash by her overwhelming memories of the embodied life of the pond so different from the picture on her overhead, Kate's vision is again interrupted by a student in the front row of the lecture hall yawning widely. Kate continues:

> I stood speechless, staring out over my audience. Inside my head, my inner ear played back to me the sound of my voice. The drone of it. The flat, monotonal delivery. And overlaid on top of the drone, like a film joined up with the wrong soundtrack, I kept seeing my own introduction to this subject: Matt and I, side by side, with the sun beating down on our backs. The beetle sauntering along under the water, safe in his tiny submarine. Matt's amazement and delight.
>
> Matt thought it was miraculous – no, there is more to it than that. Matt *saw that it was miraculous*. Without him I would not have seen that. I would never have realized that the lives which played themselves out in front of us every day were wonderful, in the original sense of the word. I would have *observed*, but I would not have *wondered*.
>
> And now I was putting an entire class to sleep. (p. 199)

In this moment, Kate, the professor, researcher, expert in her field, suffers a kind of psycho-spiritual breakdown. She looks at her class, silenced, completely unable to continue the lecture. Apologizing to her class for boring them, she leaves the classroom.

When reflecting later on this 'crisis,' Kate says that although she is able to return to the classroom for the next lecture, she is now utterly exhausted by teaching. She diagnoses herself as being "sick at heart" (p. 235), experiencing a profound sense of disconnection between her embodied knowledge and her physical reality as a university teacher. She is dislocated, ill at ease, and suddenly not at home in her classroom or at the university. When, throughout the novel, Kate relates the memories of Matt sharing the ponds with her, she describes the deep experience of existential wonder, her intimate relationship to her brother, and her physical, intellectual and spiritual rootedness in the place where she grew up. But then, the yawning gap of her student's mouth knocks her off her confident bearings as a professor. She realizes that there is no connection between herself, the students, and the 'knowledge' that she was supposed to be giving them. As Matt had given her. As a teacher she is destroying something that had been a source of love, wonder and life-energy for herself. Kate is, perhaps literally, *killing* her subjects. She has turned Matt's miraculous creatures into sterile, knowable images on plastic overhead sheet, rather than fragile and miraculous living creatures of ecosystems. Life, in her classroom teaching, has become objectified and knowable, but her memories are telling her otherwise, cutting open the sterile space of the university classroom. Her memories are the ecology of her life. The water beetle they study is intimately connected to her many hours of wonder at the ponds with Matt, the death of her parents, her home in the north. None of it fits in this room at the university and she loses her voice, her ability to speak about life in any meaningful way.

Where did the wonder go, in the space-time between the pond and the classroom? In the distance between her relationship with Matt and the ponds, and her relationship with her students and their learning? Philo Hove (1996) focuses our attention on the experience of wonder in human living: "Attentiveness to wonder, and to the many dimensions of experience it reveals in our lives, can cultivate a sensitivity to the emergence of wonder in others, and therefore, has significant implications for the way in which we can be pedagogically oriented towards students" (p. 437).

As a professor, in a university science building where walls create physical distance, where the city creates physical distance, she is unable to connect back to the wonder she once felt about these pond invertebrates, or to her relationship with Matt. Her relationships are dislocated by the situation and she is lost. Rather than being able to "cultivate a sensitivity to the emergence of wonder in others," her voice is silenced by a student's yawn. Any possible pedagogical orientation to her subjects or students seems trivialized by the institution and practices of the university. Disconnected in space-time in her classroom, she can't make the connections appear. An insect encapsulated on an overhead projector and in words, when it belongs to the world, paralyzes Kate. What learner or teacher does not know this jarring and dislocating experience? In these tired, yawning classrooms, is it even possible to experience relationships? Or does the institutional structure preclude, erase and make impossible the kind of pedagogically oriented relationships that Philo Hove describes? "In a world without wonder there is nothing to enter into relations with; because the world is mute, colourless and inanimate, we lack the means for really living in it" (Hove, 1996, p. 441). Where do we feel we can "live" but at home? Although she is "close" to her pond invertebrates in her lab, in tanks, at the university, in her teaching Kate experiences the severing distance, this feeling that in spite of all her hard work and becoming an "important" ecologist and academic, she has essentially lost her "home" (Significantly, the root of ecology is *oikos*, home). She feels alone and far from anything that *matters*.

Kate becomes convinced that her teaching crisis is related through time and space to her parents' sudden and violent death and all that unfolded around it, as a life event for the siblings and the community, into the flow and becoming that has been her life and work. Kate achieves an insight about Matt's relationship with the pond when she says, "I'm sure he drew comfort from the continuity of life there. The fact that the loss of one life did not destroy the community. The fact that the ending of life was part of the pattern" (pp. 102-103). But in her crisis and aloneness, Kate does not have faith in the continuity of life, in the ponds or elsewhere. Her own research focuses on the effects of pollution on pond life. Kate is worried sick, afraid of going "home" to the ponds. Imagining extinction, she says: "I imagined myself, going back to them one day in the future, looking into their depths and seeing … nothing" (p. 190). Kate's research – her educated 'knowing' – have come at great personal cost. She has lost her home, her heart, her wonder, her sense of relatedness, unsurprising perhaps to anyone who has ever been in a university where the 'methods' are so often about objectifying, and separating the heart from the mind. Without wisdom, 'knowing' has no purpose other than creating more knowledge (but for what? serving the knowledge economy?). Kate's seemingly perfect professorial life comes crashing in on her in a silencing exhaustion.

Far away from her ponds, Kate teaches in a typical and traditional way, standing at the front of the room. Illustrating life on an overhead slide, students – perhaps some of whom have never been to a pond – are expected to understand and absorb and give the information back. In her moment of crisis, Kate unconsciously understands that a pedagogical relationship is not being formed, that she can never share 'knowing' in this way. The chasm created by the classroom and the institutional structures is too great for relating. They are too far away from the subject which has become the object for the violence of their *learning* gaze. Kate's silence is in this way perhaps a healing gesture, the only proper response, the only way to do no more violence. Her breakdown signifies her own loss of connection and wonder. And having lost it, she cannot bring her students to that place.

Kate's inability to speak in her classroom prophetically whispers to teachers, perhaps stirring up quiet questions and terrors, and causing us to wonder, but not *wonder*, at what are we doing in this work, at what is the institution asking us to do. Have we lost our home? Our voices? Our selves? The possibility of ethical pedagogical relationships? If we understand that the self only exists in relationship to the world, then the severing of relations is a kind of extinction of self, a profound emptiness that can never be filled. Especially not with the things we try to fill it with, like literacy programs and other busy things ultimately unrelated to the ground of our being; that is, the world and its mortalities, our lives and their embodied memories, our relationships that are constantly forming through time and shaping who we are.

For the meaning of teaching, Kate's story is not hopeless or pointless, but rather *hopeful*. When Kate suddenly does not recognize her place or self in that classroom, this 'crisis' leads to her going away from the university for awhile, to reconnecting to those places that matter to her spirit, to re-establishing the severed relationships and wholeness in her world, and to coming to terms with the story that is her life. Her story points to the possibility (and necessity and inevitability) of awakening to the disaster our educational institutions can be, both on an individual psychic and spiritual level, but also on the level that they participate in creating the world we live (and die) inside. Kate's journey shows us a pedagogical path, a directionality, away from these kinds of teaching and knowing habits, towards more connected, rooted, deep and mysterious ways of being in the world. But can we do this and continue to teach?

I don't know.

three: *2000 and None*

The Canadian film *2000 and None* (Arto Paragamian, 2000) begins with paleontologist and professor Benjamin Kasparian learning that he suffers from a terminal brain disease. When his doctor explains to him that he has just a few weeks to live, Benjamin stares at his doctor and groping for words stammers: "But what about my research? What about my *finds*?!" The final stage of Benjamin's illness, which he personally dreads most of all, will be the loss of his memory. Pleading with his friends, who are struggling with the 'news' of his imminent mortality, Benjamin makes them promise that when this happens, they will explain to him that he is going to die, to not let him continue unaware of his approaching death.

As a paleontologist and professor, Benjamin life's work has been about exploring and exposing time, excavating the memories of the earth, layers of life and death crushed together telling the story of life's relationships between past and future. The ending to Benjamin's own life is like an overlay on his work bringing him nearer to the earth, to the fragility of the life (and death) that he digs up every day. The earth, he knows, is full of bones and blood and stories. Despite his initial shocked reaction, clinging to the importance of his own knowing and research, he accepts the inevitability of his own death. His friends, on the other hand, are furious. They want Benjamin to *do* something. The story finds them at a restaurant in Montreal, sharing lunch. They demand to know how he can eat at a time like this, as if all is 'normal.' They want Benjamin to tell them what plan 'B' is. He looks at them seriously: "There's no plan B... Life is not just life. It's life and then death. They go together."

There is a critical and pivotal moment in this story. Like Kate, the professor in *Crow Lake*, Benjamin also experiences a self-shattering teaching crisis. Standing at the blackboard in front of a lecture hall full of young students, covered with chalk diagrams illustrating the layers of the earth, he is delivering a detailed and organized lecture when he suddenly gazes into the distance and goes off on a tangent:

> *When we think about the layers of traces, of death, of corpses, skeletal remains, fossilized imprints, markings. Life. The comings and goings of one species after another, all there sometimes just metres away but millions of years apart...*

Suddenly silent, Benjamin stares at the class, frowning, confused, thinking about what he's just said, and obviously unsure of the rest of his sentence. Like Kate, he has lost his ability to speak about the work he has loved and known, the work that has intimately occupied his spirit. He gazes across the room, at his students, then says, "Excuse me one moment." And Benjamin exits the lecture hall and never returns.

What is the meaning of this moment in Benjamin's experience as a teacher? This moment when the truth of his mortal life, the truth of his work, comes suddenly crashing in upon his pleasant world of working, going for coffee, enjoying his nice apartment. The expanse of time, of species, faces him, just as his students face him, leaving him speechless and paralyzed. What else is there to say? What happens, in the sometimes banal contexts of schools, when are faced with *"the layers of traces, of death, of corpses, skeletal remains, fossilized imprints, markings. Life... "?* Life. All those complexities of relationships over a vast expanse of universe time. In a sense, this statement from Benjamin renders all other words useless. He has nothing else to teach his students. All the years he has spent studying, digging, *knowing*, bring him to this moment of suddenly deeply understanding that he, with his important 'research' and 'finds,' is not above and separate from these layers of life. Intimately related in this time, Benjamin is not excused from the experience of becoming earth, from what he calls *the comings and goings of species*.

As his health deteriorates, Benjamin becomes afflicted with a myriad of physical and psychic symptoms. Suddenly throwing away his eyeglasses, he declares that he can now 'see clearly.' He hallucinates: silent black and white film memories of his childhood begin to play unbidden in his mind and before his eyes, playing his heritage and ancestry, the layers of his life laid out before him. His parents, dead since he was small, visit him as figments of his imagination and give him advice. He weeps to his mother, "I don't want to die!" She responds: "But you have to." Benjamin becomes obsessed with returning his parents' bones to their ancestral home in Armenia, but his efforts are frustrated at every turn, by bureaucracy, by people who do not understand his intense and sudden urgency. Benjamin's sense of time has shifted. He tells his friends, "*There's no time for adjusting. There's only time for having time.*" He steals into the cemetery at night and excavates his parents' bones illegally, only to lose them somewhere on his desperate trip to Armenia.

There is a moment in the film when Benjamin's father appears to him in a hallucination and says: "You're more free than anybody." His father's wisdom redefines Benjamin's relationship to his own inevitable mortality. And it is this theme that makes the film a profound story about the memory of our own human mortality, as individuals and as a species, of our own place in time. It is a powerful film about life's process (not life's progress). These are lessons that might free us to do good work in life, because *it isn't about us anymore*. We are here, now, and that's all, part of the layers and layers of life. Life slipping away from him, Benjamin cannot hang on to anything. Our self-importance, both collectively as a species, and individually, fades away. In the beginning, Benjamin asks the doctor, "But what about my research? What about my finds?" But he never asks these questions again, coming to understand their irrelevance in the broader story of life, against the background of *layers and layers of life* which have been his real work. Life in this place is no longer about Benjamin, not about his work, not about what is good for him or good for his students, not about his friends, not about the future. Not about any of those things but something more sublime. His insight comes through his work as a paleontologist. The institution of the university made it about his 'finds,' his 'research,' but Benjamin realizes his understanding is about something else, something literally much deeper. The ecology of his life, including his grasping for his ancestral bone-filled family history in Armenia, does not *fit* in the lecture hall of the university, flattened by diagrams on the board, or by the bored stares of his students, there are no words for it, and so he is silenced. It is not a separate story from him, but a story he is always and already inside. He leaves the classroom because there is nothing for him there and there is nothing left to say.

Consider that our identity in schools, created on that futuristic model, on measuring and categorizing, on 'making progress,' reveals little to us about our fluid human identities, or who we are, in the complexities of the world. Benjamin and Kate are silenced and shattered when life brushes up against them in their classrooms as we all are as teachers when something moves us to tears or we feel paralyzed in our work. The message this film speaks to us is the same message we get when standing before the fossils of the Burgess Shale, when an ancient archeological site is excavated, when we learn something new that changes the way we understand our world, when we know millions of our fellow humans are about to starve to death and we are helpless in the face of it, when we read an amazing novel, when nearly a million people are slaughtered in Rwanda, when we are stunned by natural beauty, when the World Trade Centre crumbles to the ground, when a child in our class has his throat slit at school, when one nation declares war on another. These are places of speechlessness, beyond words, because they are beyond narrow human conceptions of time and progress, and they call into question the 'importance' of the human species, of our own lives, of our neighbours' lives.

A friend and teaching colleague encourages teaching as if all students were terminally ill. *Teach as if they had no tomorrow. What would teaching look like then?* she would ask. How would we live together with children? What would the priorities be? How would we address them? Maybe almost nothing we do now in school would seem relevant. In this view, what rises to the surface? Love? Mourning? Memory? Something else, other than this life which consumes us with its goals, objectives, futuristic thinking, preparation for toiling in the global economy, consumer goods, children described as resources. Human Capital.

Robert Thurman (2004) writes that "(t)ruly realizing that your life could come to an end at any moment generates a sense of urgency" and that out of this urgency arrives a "powerful source of energy and a fount of creativity" (p. 199). Benjamin Kasparian's experience, as a teacher and researcher, and human being facing his imminent death puts him in a position of realizing what is important to him. He can no longer talk in front of his class. There was only one thing to teach and he said it in a few sentences. *Life.* His own life takes on a sudden urgency. The future is gone and there is no more waiting. He wants only to fulfill his parents' last wish. This urgency of facing our mortality, instead of an immortally imagined future, *moves* us, not into more hurrying and scurrying, but into doing what matters now. Benjamin's friends complain to him that they have no time to get used to his dying. He tells them "there's no time for adjusting, there's only time for having time." *There's only time for having* *time.* This urgency of living embodied in time and place, and in the relations we are in right now, rather than in a future that does not yet exist. bell hooks (2000) also encourages us, in our work and living, to live in this more urgent place called *now*:

> Understanding that death is always with us can serve as the faithful reminder that the time to do what we feel called to do is always now and not in some distant and unimagined future.... Living in a culture that is always encouraging us to plan for the future, it is no easy task to develop the capacity 'to be here now'. (pp. 203-204)

Being here now. As difficult as it is, this is an invitation to a different relationship with time. No more waiting. No time for adjusting. *Only time for having time.* With this attitude we claim back time and make it more spacious, more open. We give it substance and body – *our* bodies that exist and live and breathe and relate here now.

These stories might remind us that the very structure of the educational process allows embodied experiences, memories, relationships and continuities to be easily lost or broken. We are distracted by pressures of accountability, by the way we think things are supposed to be done, by intense demands for certain kinds of performance – all linked to the 'future' and distanced from our present urgencies and relationships. No wonder we feel so exhausted. The intense pressures of our future fantasies and longings erase the layers and layers of life that hold us up, distracting us from our ability to stay here now.

Benjamin Kasparian's question about his 'research' and his 'finds' interests me as a question about teaching identity. In educational institutions it is so easy to think that we *are* our work. We run very fast, working always harder, feeling like life would stop without us. But it doesn't. Won't. It grinds on, grinds us up, rips our experiences away from us, and that precisely is the insight that might allow us to intervene with new insights and a new time sensibility. Catherine Keller (1996) encourages us to think of our identities as created and dependently bound by all our relations and by the time of our lives. "Time comes tensed, edgy, rimmed by tragedy, edged by all of our deaths: the frame of finite relations which constitutes the moving boundary of any moment, from the complex of relations which I have become to a new (but barely new) complex I have yet to embody" (p. 134). To understand that the person we are always becoming is also being created in each moment by these institutions might propel us into action, trying to change the institution's identity and character, to make it more humane and generous. To bring it into a deeper and more generous time where we can remember that human (not just teacher) identities are so dependent on not only each moment of our lives, not only our ancestors' bones but also on the entire time of life's existence.

Could Kate, Benjamin, I, find ourselves at home in our classrooms then?

four: *on (human) nature, justice, community*

It is a human need for work and words to have meaning and purpose, not as 'finds,' but as part of the community of life. As they suffer the loss of their existential wonder, as I did with that pressed clematis, these teachers realize that their lives have become separate, dull, lifeless. In the flattening narrowness of their classrooms and university research, in the rush towards immortal futures, the fullness of life in all its complex relations has been lost. The collapse of their systems of meaning, when the sublime depth and death rush in anyway, dramatically reveals the ways that our systems do not measure up, cannot ultimately face the really 'real' world. In their teaching crises, the essential vulnerability of these educational spaces has been powerfully exposed, and that is cause for hope. This 'hope' does not come from human doings, but rather is the deconstructive movement of life over which we can exert no human control.

What might it mean, then, for education to hold close to its heart what Catherine Keller (2003) calls our "edgy finitude" (p. 7)? In these three stories about 'normal,' even 'good' teachers, the split between the intimacy of embodied relational experiences in the world and the devastating violence of the classroom on relations and knowledge wounds and silences, paralyzing the possibility of 'teaching.' During my time living at the ocean, gazing out at the waters through my apartment's ancient wobbly glass windows, my attention was captured by the nearness of the North Atlantic Right Whales. I never saw one, but they were there in that mysterious grey deep. They will probably be extinct in my lifetime, their own mortality as a species imminent and provoking nearby humans into urgent but helpless concern. While in classrooms with student teachers, even while the windows looked out over the bay, I was conscious of how difficult it was to summon up the presence of the whales there, to make a space for them to exist. In a sense, it was like they were already extinct. Meditating on the condition of the whales is at the same time a meditating on the human condition, on our shared planetary and mammalary existence, dependent always on water and breath. Devastating to my own work and teaching, like Kate and Benjamin, silence fell upon me. My words were frozen. I did not know what to say, or how to converse with the politicians and others who were demanding more accountability and higher literacy levels at any cost. The costs might be incalculable and devastating to life, individually and historically. The relational and ethical questions provoked by such meditations on our own implicatedness and responsibility to life are very great. If we have classrooms, enthralled by visions of technological paradises, separated from the world by diagrams, overheads, PowerPoint imaginaries, where is there space for the intimate cycles of life/death? The classroom shrinks. Filled with so much noise and clutter. Even the talking stops. Maybe the breathing will stop.

Perhaps no amount of effort on the part of my grade six teacher, Kate, Benjamin or me as a teacher, could have brought the ponds, the forest, the layers of life, into those classrooms. Is the conflict in meaning, being and purpose simply too great, that it precipitates this psycho-spiritual collapse where they physically must leave this space to save themselves (and their students)? Or is the silence a sign, a place to wait and be, to stop amidst the noise and the clutter of our lives? The crisis, the breakdown, a symptom, a turning point opening out into other possibilities. The Greek roots of the word *crisis* tell us it *is* a turning point, a place to decide, to discern what to do next (ODEE). A different direction can be taken and other paths open up before us. It doesn't represent a cataclysmic end, but rather an opportunity, possible new beginnings, space for difference. Change. Something new might be coming.

The unconscious troubles our ecological and economic crises are causing haunt our teaching spaces, rising up to confront us in our dreams, anxieties and rushing. What is the meaning of facing the mass suffering caused by modern living, the death of whole systems, ecosystems, cultures, languages? It is a *real* loss, to the *real* complexity of a diverse world. Are the implications of this too difficult to face in our work as teachers? Is it bringing us all to the edge of collapse? In my most recent year of teaching I could sense the exhaustion and anxiety everywhere in schools, the frantic busyness of never arriving anywhere that matters. It is not simple to diagnose the causes of this. Are we fleeing mortality in all our work and our work therefore cannot bear it? We have reached this point of considering not just the singular mortality, a child's or our own (which although it matters we cannot think about), but a much bigger scale. What of the mortality of 6 billion humans, this mass extinction, or this finite planet? Like Žižek's (1991) "cut that derails," the true and urgent fragility of our lives crashes in and throws us off the tracks. Emmanuel Levinas (1999) wrote that our mortality, what he called the "inexorable" and "the only certainty" (p. 154) is for our thinking, for all our philosophizing, the "hole that undoes the system, the disturbance of all order, the dismantling of all totality" (p. 155). The cultural, economic, spiritual structures we have in our minds, our thinking, the meaning and sense we have built our lives around collapse into voicelessness. Like Benjamin and Kate, must we walk away from our classrooms?

Is the only possible direction out the door?

creating community

In asking which way(s) we might turn, philosophically and in practice, consider that community, what we often say we strive for in education, is formed in the recognition of our relationships; that is, not in a bunch of unique individuals competing for selfhood, but in the flow of a tangled complexity of interdependence through time. Consider the possibility of living through the silence, the crisis, the speechlessness, in recognizing what it is a symptom of. Consider the possibility of not walking out the door, but of summoning up the courage to stay in the classroom and to recognize that all the relationships of life exist there already. They come through the door with each of us. Might we invite their presence, summon up meditative powers to hold them close, against the erasing and demanding powers of the institution? Might we set our hopes on an 'outcome' that is more time-bound, nurturing, meditative, conscious, complex and spirit-filled?

Encouraging us to avoid the lure of both future fantasizing and death denial, Catherine Keller (1996) suggests that it is in the intimate urgency of the present that community is formed, "in the folds of this finitude" (p. 296) . She insists that community is reciprocity, is justice, social as well as ecological:

> In us talking mammals the matrix craves conscious reciprocity. This entails rightness of relation: justice toward each other and toward the ecosphere function as *necessary* conditions of this communing complexity. (Keller, 1996, p. 302)[19]

Before both Benjamin's and Kate's silencing, only the teacher is talking. Both "communing complexity" and "community formed in the folds of finitude" are essentially absent, as they are from so many educational spaces. Because life is ecological and arises out of relationships, Kate and Benjamin run out of words. Their work doesn't make sense to them and the feedback they get is yawns and boredom. It is their own relationship with mortality (for Benjamin his own impending death; for Kate, the memories of her parents' death and the delicate sensitive ecology of the ponds that created her life's work) that spurs in each of them a deep sense of life's urgency that interferes with the timing and meaning of their teaching. Without reciprocity and community there is merely emptiness. To learn to be in our classrooms with such a sense of urgency, towards communities of social-eco justice, so different from the urgency of rushing to the future for the economy, is a challenge for teaching. If we believed this were a measurable and achievable goal we would surely give up; rather, perhaps it is about cultivating awareness, reminding myself to take responsibility for the kind of place I create for children, practicing living a grounded life as a mortal human being under the idea that what we take up with children in a classroom/curriculum might become compassion, love, life, *how we live now*. This conversation becomes urgent in the moment.

Our knowledge of our finitude, the earth's finitude, is what American poet David Whyte (2001) calls "the ultimate context of our work" (p. 61). Preparing children for the future, as a primary purpose of schools, is neither relational nor urgent. The irony is the way it makes us *feel* like rushing! Time stretches endlessly before us and sacrifices our present relationships to future time. In our distraction, we might forget that the present is the only truly intimate place, materializing out of relationships, forming possibilities for the future that we do not know. Whyte writes: "Death is much closer to each of us than we will admit; we must not postpone that living as if we will last forever.... All around these conversations, the world is still proceeding according to mercies other than our own. This is the ultimate context of our work. The cliff edge of mortality is very near" (p. 61). Jacques Derrida (2001) insisted that it is our 'knowledge' of finitude that makes possible friendship, relationships, these *communing complexities*. In the classrooms in these stories, in the institutional orientations to knowing, learning, research and 'finds,' the relationships were already profoundly distanced, if not broken. Intimacy and love in any form were already absent, the classrooms existed in no place and no time. Without community and complexity, the knowledge of finitude was unbearable there and its intrusion caused paralysis.

An education that could bear mortality would be an education that was more interested in the natural world, in relationships, in slower and deeper time. It would be an education that does *more* in school: more interesting, more challenging, more human, more lively conversation and work. Yet, that is, paradoxically and necessarily, without becoming more *busy*! It might be full of emergent wonder, sublime hopes, and impossible dreams. It would not be the stifling, limited, rule-bound talk of accountability to the future, to corporations, to governments governed themselves by corporations, and it would not involve spending vast amounts of money buying more programs for fixing children to fit economic neediness. Open to mystery, an education that 'remembers' mortality would be an education holding the relations of life always present, letting them show themselves, understanding that there is so much about life that we will never 'know.' It might be an education that does not cut itself off from what is outside the school, separating what is called 'knowledge' from bodies, time, experience, continuity, ancestors but rather being firm on that ground(edness). It is an education that understands that each moment is important, now, bound in a complexity of relationships, intertwined with time, culture, earth, learning. It is easy to imagine the opposite, where schools would be (about) the death of time and life. Where *this moment* isn't important at all. Where love and growth are sacrificed to the future, forcing people to be cruel and competitive individuals in their fearfulness and mindlessness. Consciously working against this is no easy task. Embracing complexity and finitude, opening ourselves to the relationships that create us all, deeper meaning and time might take root and grow a new kind of place. In the stories invoked earlier, it was the complexity that shattered those teachers in their classrooms. Their work was no longer simple or straightforward, no simple lesson by lesson timeline, but rather was interrupted by meaning and time, by nature and mortality.

superhumans coming home to earth!

Near the end of the film, near the end of his life, Benjamin Kasparian, once a respected professor whose identity depended on his research and finds, sneaks into the university lab after hours. He steals a brain, bones, some blood. At a place outside the city Benjamin digs a pit in the ground. He lays out the image of a running figure, a brain on legs. After covering this strange grave with earth, he lays down upon it and falls asleep. When Benjamin awakens his memory is gone. He has gifted himself, his life, his work, back to the layers of the earth already taking him into its own meaning.

Futuristic progress visions have implied the possibility of being independent from the earth and its limits, so necessary for exploiting resources and justifying abuses of our common ground, as well as resistance to facing our own mortal natures. Neil Evernden (2002) suggests that we modern humans envision ourselves to be "suprabiological beings" and consider ourselves to be able to "direct our own destinies and be freed from the so-called tyranny of nature" (p. 117). Benjamin's final act is a gift, not just to the earth, but to us as we watch him. It is an act of humility and groundedness, reminding us to be careful how we imagine ourselves, our powers, our futures. It reminds us that we belong to the ground, a subversion of our human arrogance that puts us above the earth. The earth is the ultimate common ground of the human species and all other life on the planet. It is our home. Neil Evernden again: "The world is experienced as something that we do belong in. It is a home. Someone lives there. I think the meaning I'm talking about is this place being the home of us all, human and nonhuman alike" (p. 121). It is this meaning of the earth as habitat, as home, that escaped Kate and Benjamin in their teaching lives. They both knew it. And they both forgot. (Yet their stories remind us… how can we not forget? I seem to forget every day in my classroom.)

And yet, even another more terrifying question arises. Might this avoidance of complexity and mortality, this hurrying towards the future, this separation from nature, hold not only the seeds of violence towards the earth, but the seeds of violence towards one another? And what might this mean for our work as teachers if we hold out any hope for community, justice, peace? James Hillman (2004) reflects on the difference between the Greek concepts of *thnetos* (mortal) and *athanatoi* (immortal). About *thnetos* he writes:

> Humanity is mortality; mortality is the one inescapable universal truth of all human beings. We all die, have always died, shall always die – and we know this in our bones, a knowledge we assume other creatures do not have the same as we do. (p. 74)

He suggests we are deliberately practicing a forgetfulness around our knowledge of death, as we aspire to *athanatoi*, to immortality, to being gods, and from this place we spin quickly out of control. We love war. In believing ourselves to not be *thnetos*, we then practice inhumanity – towards others, towards the earth. Many of us have taught in classrooms where nearly all the children have come to this country because of war, famine, suffering, brought about by human behaviours in this past century. This can be one of the causes of the kind of teaching crisis suffered by Kate and Benjamin. How are we supposed to make sense of our work? Which direction shall we go to not participate in and accumulate more suffering on the planet?

In meditating on mortality, holding near to our hearts the fragility and fleetingness of all life, including our own, our friends, our students, we might resist seeing our students (our selves) as suprabiological athanatoi. We might learn and practice other possibilities and ways of being that do not allow us to be distracted by futuristic or impossible visions that are destructive to the thoughtfulness of our work and relationships.

> I do not relate to you *in* time, or greet you *in* some pre-established space; rather, our relationship will constitute its own spacetime. Such attention to space brings into the foreground once again and at once the local, the carnal, the cosmic. And therefore at once the temporal, that finitude which allows its members no pretense of their own infinity. (Keller, 1996, p. 170, emphasis in original)

Both Kate and Benjamin, and my grade 6 teacher with his rubric for (op)pressing flowers, had fallen out of relationship with their students and with life. They had learned an ambivalence towards their students that would come to haunt them (or me, in the case with the clematis). But perhaps fault should not be assigned here. Again the question arises: are relationships and community even possible in schools? What if "Time and space are understood not as axes or horizons initially but as *relations*" (Keller, 1996, p. 133)? Think of the ways schools disrupt both space and time, the ways my teacher separated the flowers from all space and time, framing them only in the space-time of that classroom which was nowhere and not in time. The clematis was removed from its *oikos*, its home, and from the place that I was 'at home' with it. Kate and Benjamin, in their classroom crisis, experienced a shocking and jarring break with the space-time of the natural world which had nurtured their own understandings, bodies, and work.

Rather than allowing these experiences to silence and paralyze us, perhaps we might learn to recognize these critical symptoms when they arise. To respond to them. To not have to excuse ourselves and walk out the door. To learn to make a space for terror, wonder, awe, confusion, those deep human emotions that relate us to the world, to one another, and to time itself. Canadian poet Don Domanski (2002) relates this to his own writing and being practice, reminding us that these depths of human experience/life are experienced as a whole, that abjecting one of them (like mortality) might mean also that the rest also disappear from our experience. "My need to write about death is my need to be human. It's not possible to write about life, about the sheer wonder of that, without the backdrop of death" (p. 253). The moment that Kate experienced in her classroom, or that I experienced as a child receiving a grade on my pressed flower, creates a violent rift between what we have experienced in a carnal way, deeply embedded in our bodies as memory, and the present time experience of a classroom separated from any meaning that matters. The characters in the film and novel, and I as a child in the woods, experienced awe and wonder, in place-time-spaces that we shared with our *subject*, whether a flower, pond creatures, or bones millions of years old. Time, subject, self were merged in a holistic experience of the creation of human and personal meaning, embedding our selves deeply in the flow of life. *Layers and layers of life*. Listening to, observing these experiences as teachers and learners might be the transformational opening experience we hope for. If, as Phyllis Webb (2002) suggests in an interview with Jay Ruzesky, "(a)we and wonder bring us close to the mystical, the hope of climbing out of the boxes we live in from day to day" (p. 228), then seeing ourselves *in* nature and *as* nature, as time and in time, as mortal beings, we might learn to resist the "Western preference for future" (Keller, 1996, p. 135).

Kate and Benjamin did heed the signs to climb out of their boxes, but not in the ways we might expect. Their radical change is not in the ways they are *in* their classrooms, but in the ways they are in *the world*. Their identities change. They are 'undone' by their sudden contact with the world, by the loss of their individual 'selves' that the institution has made seem so important. Benjamin asks, *What about my finds?* And there is nothing there. This identity as teacher, or researcher, is not *him*. Benjamin's 'finds' are *not Benjamin*, only part of the relations of flow of life which also constitute the world around him, around us all, inside us all. Layers and layers of life and time in complex relations coming and going.

A few years ago I visited some student teachers in their practicum classroom. They were studying recycling with the children who had been instructed to bring a selection of garbage from home. The children were separating it into piles and categorizing it on a worksheet. I sat with one group of children around a table, sorting their items with them. In the pile for recycling were plastic milk jugs, paper, pop cans. One of the children had brought some dead batteries and suddenly the conversation jarred with frustration. They didn't know where to write batteries on their worksheet. They became very troubled. They didn't want to send the batteries to the landfill and they didn't know where to write it on their worksheet and they didn't know what to do with the batteries when they were done the activity. Their question was too big for the paper and those categories. It suddenly spilled into an animated conversation about watersheds and the problem of batteries and sewage and the communal garbage of a city of a million human beings and what are we doing together to ensure the future inhabitability of the earth? The only solution they could think of what to stop using batteries. They said people should stop making batteries. They didn't want to be near those batteries on the table.

Andy Fisher (2002) suggests that what is often missing in our lives is an "existential sensitivity" (p. 55), that becoming more sensibly oriented towards the natural world would require a "retrieval of our embodiment" and "our task is to reclaim a body that walks on, and is nourished by, the living earth" (p. 59). My heart says that this is already there. I have seen it in children, not only with these batteries, but the children on the bridge yelling at the fishermen about the sewage in the water. And in many other children and adults. Their knowledge and concern is genuine. They are already sensitive towards our (self and other and creaturely) mortality as part of the world's fragility and interconnected relationships. The question is do we allow this sensitivity to arise, to be in conversation, to be present in our communities?

All the adults in that classroom were horrified later by this activity, by its good intentions, by the batteries, by the worksheet. But like the children, we didn't know what to say. Another crisis, a turning point, for our practice. Being existentially sensitive is difficult in schools, nearly impossible. This is the confrontation in all three stories. The encounters with nature and the embodied knowledge/wisdom arising from that, including the face of mortality, became such a psychological and spiritual burden that the meaning of the teaching and learning work collapsed under the weight of it. The work cannot, in honesty, or properly, continue. Perhaps Benjamin's teaching becomes meaningless to him in the face of his mortality because there was no wonder in his classroom in the first place. Learning in the lecture theatre was not embodied and alive, and so when his body was dying, joining the layers of other bodies in the earth, the wonderless classroom became too small for words and thought. When Kate freezes in front of her class, silent beside the overhead projector, she too feels the squeezing smallness of this wonderless space. The miracle of the pond has been lost. Those children in the classroom were hoping for a miracle, hoping that the batteries would disappear, that they wouldn't have to be near them, or use them, or see them ever again.

Again. How is education to bear all this, to learn to face the cycles of living and dying, to live within the limits of life, to stop trying to escape into future solutions? Ecologist Paul Shepard (2002) urges us to learn to:

> participate appropriately in the world, to limit ourselves, to acknowledge that we are a part of world food chains (…) It means accepting the world as given, rather than made, a world of limits, contingency, the courteous readiness of the sacramental reality of death. (...) We have scarcely begun to discover what it means to be an organism on a very small planet, from which there is no escape, no alternative. (p. 259)

If we do not learn to do this, we can continue to deny the illness of our bodies and the relationship of that to the death of the whales and so many other species. We can cram 30 children, sweaty and hot, into a small tight space without a window where breathing seems restricted and think this is fine. We can unground and un-time ourselves, pretend we aren't linked, even convince ourselves and believe this perhaps. We can say to children 'sit still' and mean it. We can pretend there are no limits to either the growth of populations or economics or consumerism. But then, in the end, the limit is there, and we see this in the extinction of the whale, or in the lack of justice, the suffering of our human neighbour, and in the stripping of the land for resources we need to live.

This is the turning point.

river walk: coda

Walking here, life seems lush, flowing, moving, diverse. Year after year the clematis has bloomed here. Would we notice if they disappeared? Would it matter? What do they depend upon and what depends on them? Does one think of the watershed at this moment? Where this water comes from and where does it go?

On this day, there is a commotion near one of the pedestrian bridges. A gathering crowd and a police car. And as I come near, I notice a young man, dressed in a dark track suit, perched out beyond the rails, precarious on the concrete bridge abutment. Will he jump? Someone on the bank is taking a photo of a young police woman crouched down, holding out her hand towards the man, reaching her life towards his. Everyone feels the crisis, the turning. Who among us does not know this feeling of life losing its future possibilities, openness, wonder, this terrifying aloneness that comes with closure and despair?

This time, life takes a breath. He reaches his shaking hand towards the police woman. Contact.

I do not know this man on the bridge, will never see him again, but I walk the rest of the way home with an aching spirit in this close intimate time of another's mortality, in this place that holds the memories of glacier ice, blue clematis and wild sweet roses about to bloom.

5

Inhabitations:

All the language in the world

The house where I go to learn
Is trying to break my language from me.
So that I may learn their ways better.
But yet I hold on to my language
And I speak it clearly.

—Jerry Alfred (1996)
Residential School

one: *ground*[20]

While walking in the forest, picking our way along an animal trail, over fallen trees, under hanging branches, my mother and I stumbled across the scattered skeleton of a deer. At first it was just one bone, lying there shining white against the soft green moss. But with each step, more bones. We picked them up, walked around them, to see how far they had been scattered – perhaps by coyotes, but maybe also a bear, small rodents. These bones, in various stages of decay, some white and shiny and clean, and some still connected with tissue. Something died here.

The low afternoon sun warmed our heads. I was holding one of the bones in my hands, feeling its surprisingly heavy weight, when our conversation took a sudden turn. My mother looked at the bone. "All the language in the world is connected to that bone," she said.

All the language in the world.

Between the trees, space, in the filtering sunlight. Autumn shadows. And the forest strung with glistening spider webs. The warp and weft of life announcing its precariousness. Beautiful. See life held here in this moment, between infinite beginnings and endings. This place remembers the water, remembers the air, remembers the breath, remembers the ants, the raven. The forest remembers this animal.

Needed this animal.

The earth swallows herself. See how the moss grows over the bones, even while they are still connected with their life tissue. See how the fallen trees, cracked and broken are crumbling as insects weave tiny trails through them. Life calls to life. Calcium dissolves. Mineral of structure and life circulating for millions of years. Body to body. Everything goes back to the ground. See how the grass, caught between summer and winter, is reaching up from shadow to brush the light. A generous gesture. Tiny plants burst out of the undergrowth. The forest regenerates itself, again.

All the language in the world is connected to that bone.

In this time of hurrying and scurrying, of the disintegration of natural systems under the crushing power of human systems, what are the connections of language to the world? What words are left to speak? What is the time of language? What is the place of language? What is the time of the forest? What is the place of the forest? What is the time of a life? What is the place of a life? What is the time of a classroom? What is the place of a classroom?

... all the language in the world

Language, arising from the living, growing, creative ground of human living and experience, connected to everything, naming the world, related through the flowing streams of life, the first molecules, the first single-celled organisms, the first breath, to places near and far, to time near and far, to life near and far. Thought, floating in the sweet air between the trees and damp soil, in the mossy cluttered forest: what might happen when *this thought* is brought to the space of the classroom, to thinking about language in schools, to curriculum decisions about children's learning and living?

two: *‘conditions of unfreedom’*

This final chapter is an attempt to gather together some meditations on ecology and time, in particular relation and meaning to the daily work teachers do with children and language in classrooms. Through circulating these themes I seek ways of speaking that articulate and imagine generous openings, unfoldings, homely spaces, to inhabit in classroom communities. This, against the backdrop of ecological collapse, that is, the collapse of *our home, our ground*, the rapid decline in number of species on the planet, and also in human terms, in the number of languages and diverse cultures being consumed by the forces of standardization and economic globalization/consumerisation. Those of us who live in classrooms from day to day experience this in the real, embodied, challenging and diverse life of those places, in real human encounters with each other. Through such encounters, teachers become aware of children's and family's – and our own – grief at the loss of their culture and language, and of their many unchosen displacements by war, economic and/or ecological disaster. On the other hand, even as we are inundated every day with this not-so-new news of social, political, ecological catastrophe, in our teacher identity we are faced with those great pressures to perform and 'measure up,' particularly in the area of 'literacy.'

In the time of my own teaching career, about 18 years so far, the area of language, in all its creative manifestations, has seemed to be the site of the most conflict. A once creative, relational and interpretive focus on what was called the Language Arts was reduced to literacy, and then further to 'reading' or 'writing' as fragmented and disembodied skills. I have witnessed this not only in the language of politics (and manifested in overt actions like the administering of achievement exams), but also in teaching at the university (in the narrow focus of some courses I was assigned to teach, such as "Teaching Reading to Struggling Readers in Grades 4 to 8"), and through visiting many schools across Canada and talking to teachers about their stresses and struggles in this area. In this context, the value of 'reading' becomes related to achieving higher scores on government exams in the name of local or international economic competitiveness. As a *literacy crisis* is named, a violence ensues: a barrage of so-called literacy programs bringing with it a new kind of control and colonization is imposed upon schools, teachers and children. Teachers are commanded to use pre-programmed methods. Children and books are measured, leveled, flattened, standardized. This new fetish creates a busy distraction from other purposes and desires, from being quiet and reflective, from trusting one's own wisdom (since we are 'failing'), and works to close the possibilities of other interpretative relations with language, confining teachers' movements and limiting freedom and creative thought. It might stop us from being able to think about the ecologies of this work, those delicate connections between what goes on inside our classrooms and what is going on outside our classrooms.

Controlling 'literacy' is part of the manifestation of control of everything, a reductionism and fractioning that continues until the place of languages' connections to natural origins and places of groundedness are completely severed. This closure within classrooms reflects the closures (and enclosures) occurring everywhere on earth. School itself becomes an enclosure, disconnected from the world. A column in the New York Times (Winerip, 2005) highlighted this trouble, describing the ways that some New York City teachers, although participating in many professional development sessions and professing to believe in approaching children's literacies and learning in open, diverse and grounded ways, admitted to teaching in very narrow and limited ways so that children might do well on standardized tests. They saw no way out. One of the teachers interviewed said that teaching was turning into "a prison." I know this well in my own practice and struggle each day against the anxiety that I should be doing more standardized practice with children because what if they don't do well on the tests? As the school year moves on, the ticking of the testing clock talks/tocks faster and faster no matter how I try to ignore it. Responding to these pressures and closures, and recognizing that teachers were being barraged by new methodologies and political mandates, in 2003 the educational journal *Language Arts* put out a call for papers for a special issue on the theme of "Teaching Literacy in the Cracks." The journal was looking for stories of possibility. Where were teachers finding space to meaningfully engage children? Where were there cracks in these mandates and scripted teaching materials? bell hooks (1999) named this pressure to conform and perform a global domination "a growing condition of unfreedom" (p. 121).

Maxine Greene (1988) challenged educators nearly 20 years ago to see the "pestilences" (p. 475) beyond the walls of our own classrooms, and to respond to those in courageous and truthful ways, saying that these are critical questions facing education. She wrote:

> There is a growing tendency to describe children as 'resources' rather than persons, with all the implications of 'use-value' and even 'exchange-value.' Proposed improvements in their education are argued in the name of the nation's economic competitiveness, not for the sake of the growth of persons. (p. 475)

Now, two decades later, it seems that such *conditions of unfreedom* and the directives and discourses of mastery have continued to dominate and tighten around the spaces of schools, around the work of teaching, around the possibilities of children's learning. It is difficult to resist the narrowed definitions and literacy practices that are being promoted and circulated, even as I wish to hold open a place for children to experience the grounded and complex immensity that *is* language, to *be* with them in this experience of *all* the language and stories, dreams and art, dance and drama, all these multiple and diverse representations of being human in the world through time, space and place. It is difficult to remember that the time of language is the time of intimacy, of thought, of contact. A time of communion and community (and conflict, of course). A time of creating and meaning and spontaneity.

The roots of the word 'literacy' are from the Latin *literatus* (COD), meaning an *educated* person, a *learned* person; a person who is wise and thoughtful. And consider the roots of the word 'education,' also from the Latin word 'educe' or 'educere,' which means to lead forth or to draw out. Derrick Jensen (2004) writes, "Originally it was a midwife's term meaning 'to be present at the birth of'" (p. 15). He contrasts this with the word 'seduce,' meaning 'to lead astray,' and he calls education departments the "departments of seduction," places which lead people away from themselves. In a time that seems so strained and squeezed, where the forces of power seem so silencing and controlling, how might these many contemporary challenges be negotiated by teachers who hold dreams for schools to be places of leading forth and drawing out, for young people to grow, learn and create, to become their best possible selves, in relationship with others, using their own talents, skills and happiness in the world. In a time where the *timings* of living seem so regulated and mandated, where are possibilities and freedoms for plotting out a community classroom time, to allow it to generate its own rhythms and shared languages in a flourishing and growing response to the world?

The place to hold out hope, however faint, may lie in the ultimate ecological reality of the world and all life. It may be possible, in fact plausible, that these ideas, programs, and tests will deconstruct themselves, self-destruct, as cracks open to allow life to continue to grow, where teachers and children explore and learn what it is to be alive each day over again. Language, like other living forms, in the end, will refuse to be enclosed by these borders, erupting forth in joyous and violent and evolutionary bursts. bell hooks (1995) writes that "Language like desire disrupts—refuses to be contained within boundaries (p. 295). These disruptions and cracks are the openings in the world, the places that wedges are driven in even while other closings are occurring. Seeds of desire and imagination will fall in, take root, and break apart this choking and smothering enclosure. The cracks will let in the light, the air, the water, and The Life with all its joys and pains, finitude. These programs cannot, in the end, keep life and language out of a classroom.

To what is this teaching work obligated? How might teachers consciously enact this work of leading forth and drawing out? Maxine Greene (1988) quotes a question asked by Elie Wiesel: how might we, as responsible or ethical beings who have *some* choice and control, "steer events 'towards the sun and not toward the abyss'"? (p. 475). In this time, steering events away from the abyss might be involve the work of remembering the ways actions are connected, that it matters what decisions are made, what actions are taken, and what is set in motion in local spaces, including in a classroom or individual school. Asking questions about the meaning of the work of teaching and learning in the lives of children – and the meaning of this to the world – might give me courage as a teacher to find those cracks and spaces for speaking with courage, to find even the smallest spaces to seek love, joy, wonder, thoughtfulness, poetry, community and justice for life to continue to unfold in a flow of creative diversity.

three: *gifts*

Jacob, a five-year-old friend, gifts me with a one-page story. In the illustration, the sun shines brightly and happily in the corner, a tree grows up from the ground, reaching into the sky with its branches and into the earth with its roots. A dinosaur is eating the tree. In the centre of the drawing is a moose, with tall antlers, and Spiderman is coming down from the sky. Jacob's five-year-old printing across the page tells the story:

"The dinosaur that eats moose and Spiderman that saves the moose."

As I read this story, I enter Jacob's life and world. I learn about his imagination, knowledge, passions, and relationships. Already, at five, he considers himself to be a writer, an illustrator, a user of symbols to communicate meaning. He knows about letters, and that writing in English moves across the page from left to right, and that it can communicate his thoughts and ideas with others. This is a story generated by a child, out of a child's world and inner thought. It has flowed from a child's own wisdom. It tells me something about what is going on, what *this particular child* is thinking about and interested in on *that* day, in that creative moment when the story was created. The story was not written on demand, planned for, or shaped by any adult, but rather fully imagined by Jacob the storyteller bringing it to life. I read Jacob's story as a precious sign, a prophetic voice calling out and reminding even in this time of control that what is called 'literacy' arrives in its own time, in its own ways, and out of a child's own desires and efforts.

* * *

I met Josie, a six-year old with severe expressive language difficulties, while working briefly as a substitute teacher. Communicating her thoughts and desires through speech seemed nearly impossible for her. Yet, she wanted desperately to talk with me. She followed me around the room, talking, but the words that came out of her mouth were not comprehensible or recognizable to me as the listener.

I had a beautiful new picture book in my bag, and I decided to share the story with the class. During the story, Josie was sitting up on her heels, leaning towards me, laughing with the rest of the children. She was so close she was almost climbing into the book, almost climbing up onto my lap. We finished the book and I explained to the children what their teacher wanted them to work on for math. During this time, Josie got up and began wandering around the room. Then I saw her colouring at her desk. As I continued to explain the activities to the class, I decided to resist my teacherly urge to call Josie back to the group, to discipline her and make her conform. She seemed so engaged in what she was doing. After I sent the children off to work on their math, Josie came to me with a drawing of a scene from the story, on a torn piece of lined paper, a beautiful drawing full of motion and comedy, communicating her own enjoyment and her own interpretation of the story. She pushed it into my hands, her small hands pressing against mine. I insisted that she take it home for her mom, but she kept pressing it towards me, until I thanked her and put it into my bag. Josie's picture still hangs on my fridge.

I do not remember the name of the school, or even when this was during the year. Was there snow on the ground? Each day, still, I see Josie's picture in my kitchen. The moment of this gift, this exchange we made, moved me so deeply and reminded me of the ways language is both *a gift and an exchange*. It is a relationship that emerges in shared spaces and shared experiences. I shared a story with Josie, and she shared her response with me, and in this contact the book became something even more lovely, something larger than both of us. A gift of words and story, in a moment of grace. Driving home, I could not stop thinking about what would have happened if I had stopped Josie's wandering around the class, if I hadn't let her sit at her desk and draw while I worked with the rest of the children, if I had disciplined her body, her spontaneity, her joy. Then I would not have known that Josie loved this story so much, that she felt so inspired that she had to physically leap up and respond, with a picture, which as a child who could not yet write, and who could not speak, was the only possible way she could communicate with me, with the 'literacy' she had available to her in that moment.

It is on these days, in the freedom and joy of the encounter with Josie's response and Jacob's story, that I am most profoundly aware of writing, speaking, teaching in a time when schooling has been weighed down with this discourse of language of quality and accountability, of literacy being narrowly defined only as reading, more often only as decoding – and how very far away that is from becoming *learned persons*. In this time obsessed with measurement and accountability Josie is already a failure, already at six years old does not measure up or fit into the category called 'normal.' She has 'special' needs, and requires 'fixing' or remediation, and an Independent Program Plan that sets her apart. Under these literal terms it is so easy to be distracted, to forget that there are issues of the human spirit, of the ecology of the planet and our relationship with all life through time, that cannot be measured and contained, and that these might be the *most* important part of the literacy process (not progress). Ben Okri (1998) writes that "*Homo fabula*: we are storytelling beings." He continues, "We are part human, part stories," and "It is through the fictions and stories we tell ourselves and others that we live the life, hide from it, harmonise it, canalise it, have a relationship with it, shape it, accept it, are broken by it, redeem it, or flow with the life" (p. 114). Josie's response, Jacob's story, and many other similar day-to-day encounters, remind me of the intimate relations between the conversations inside our class, our readings of literature, our responses, our aesthetic experiences, our playing and creating together and the generative unfolding/enfolding of our classroom community flourishing with a kind of radical freedom and creativity from within itself. To an obligation to language. To the world. To life.

four: *language ecologies*

The hovering background of the early 21st century is defined by tension between ecology and economy (and its myriad of interrelated social fall-outs and crisis), variously described as a "non-sustainability crisis" (Shiva, 2002, p. 1), a planetary crisis of diversity (Shiva, 1997), "ecological overshoot" (Wackernagel & Rees, 1996, p.xi), or currently generalized politically and culturally as "climate change." No matter the name it is given, this process (progress?) might be recognized as a mass extinction of species, cultures and languages everywhere – affecting some places more than others, and some human beings and other species more than others. Addressing the question of whether and how these human and ecological concerns might be intimately linked to schools as institutions and to classroom language practices might be the contemporary ethical calling of pedagogy. Is there a connection between, for example, language and ecology? Between being teachers and being human beings in relationship to the world? Does one have meaning for the other? How will education (in all its various functions and institutional forms) face and address these tensions, its interpretive meanings caught as they are in this system between ecology and economy, and teachers specifically caught between an ever more rigid and prescriptive system and the ethical decisions that must be made many times each day about individual children's learning and lives in their own unique contexts and histories? Such questions provoke me to listen to Jacob and Josie, to pay attention to their lives, to how their lives are being named and described, even before they have words to name it for themselves, or to engage poetically in other processes of their "own becoming" (Greene, 1988, p. 475).

Although it seems that the times and places to tell the truth about the work of teaching, to speak to the increased reductionism, simplification and control and recourse to schooling as utilitarian – as something that can be externally engineered and controlled – are elusive and bound by fear and 'professional' constraints, it is those bones in the forest that are ecologically bound to and grounded in *all the language in the world*. This most fraught and conflict-ridden school 'subject' called 'language' begins to open, becomes 'life,' becomes 'whole.' The bone in the forest stands as a symbolic touchstone, a marker, a sign, a reminder. The creative thought of some scholars at the fringes and crossroads of ecology, psychology and language may offer to us as teachers a form of counter-dialogue; opening, deconstructing and grounding language and literacy practices with such force as to make such practices as guided reading and leveled books irrelevant and banal as they already are.

While the late twentieth century academic "fascination with language, texts, and the social construction of knowledge" (Abram, 2002, in Fisher, p. x), especially from post-modern thought, has had what David Abram calls a destabilizing effect on certain modernist ideas about 'truth' and 'reality,' and has (perhaps) wedged open spaces for more plurality and diversity (sometimes), this particular orientation has not been able to satisfactorily address, break, or bridge the Western dualistic divides between human and nature, between mind and body, between human and non-human. Indeed, is it possible that a modernist humanistic arrogance about the ways language and societal dynamics structure our experiences of the world has actually been further fostered by academic theorizing? Joe Sheridan (2001) reflects, "The real names that live in the land are still there, but using language to find them backfires. Because language, as most academics understand and practice it, keeps its speakers elevated from the ground and so the place where the things and their real names live" (p. 202). The language and the bone remain separate and fragmented, one having nothing to do with the other.

But what if language theorizing (and practice?) were to begin in a different sort of place; that is, in understanding that language was first structured by experience, and by embodied human interrelations and embeddedness both in and with the world? With surroundings, smells, dangers, beauty, relationships in whatever environments humans found themselves? Thinking about language this way is one way to situate humans in the *times* and *places* of language and story/myth and in generational earthly time. The truth is that, as humans, we inhabit our words, a reciprocal relation, as they simultaneously describe and create our lives. This is a poetic and aesthetic relationship to emerging and changing worlds and in conflict with the structure and control imposed on schools and learning. David Abram (in Fisher, 2002) suggests:

> It is true, of course, that our particular cultures and languages greatly influence our experience. But it is increasingly evident that our societies and even our languages have themselves been profoundly informed (and dynamically structured) by the diverse terrains, climatic cycles, and biological rhythms of the animate earth – by this more-than-human world with its thunderstorms and forests, its ravens and malarial mosquitoes, its deserts and tumbling rivers and bison-stomped prairies. (p. x)

By connecting language with *places* and in generational earthly *time*, is it possible to situate ourselves in the times and places of languages, rather than placing language strictly in the *time* of human beings? Is it possible in a world where children rarely go outside? Where increasing numbers of animals and plants go extinct every day? In a classroom where children on a fieldtrip see cows in a field from a bus window and think they are horses? The science and philosophy of ecology continues to unveil the ways all of life, through time, is deeply and immeasurably interdependent. Ecologist Neil Evernden (1996) uses the term "intermingling" (p. 93) to describe that place where the boundaries between time, life, place and species are not so clear, those intersections where one part of life blends and moves into another.

The danger is in being immersed every day in a time(line) when it is so easy to become caught in the pressures and terrors of preparing children for the future and for work that we can lose sight of our intermingling present, of the ways we "exist in profound interrelatedness" (Spretnak, 2002, p.49) to the world – that is, to all of life through time. Charlene Spretnak describes this interrelatedness thus: "We now know we are linked at the molecular level to everything in the universe, but there is also an amazingly complex interaction of self-organizing systems and emergent properties, all existing within the cosmological embrace of gravitation. We are affected, often at very subtle levels, by the fact that we are *embodied* and *embedded*" (p. 49). David Abram (in Fisher, 2002) similarly raises the question of whether a dualistic mindset such as many of us inhabit in the west is an illusion, given the nature of our human and mortal *nature* that can never be escaped:

> The new awareness of our coevolved embeddedness within the terrestrial web of life inevitably raises the question of whether the human intellect can really spring itself free from our carnal embedment in order to attain to a genuinely objective, or spectatorlike, understanding of nature or whether, in truth, all our thoughts and our theories are secretly dependent on, and constrained by, our immersion in this earthly world, with its specific gravity and atmosphere, its particular landscapes, its myriad plants and animals, so many of whom are now threatened with extinction. (p. x)

It seems very difficult to even hope for a more than intellectual grasping of the meaning of embodied and embedded in the context of most schools (and universities). I think about how little school time is spent outside in natural environments, and even more, how few natural environments many schools have easy access to. The 'world' outside school buildings is often impoverished and degraded. Many school grounds (the world *ground* stands out here) have few plants or trees, and much concrete. They therefore have few of the 'Others,' the insects, the animals, the birds that might teach humans about how to be on the planet in relationship with them. Inside the building there occurs a host of disembodying practices that begins with disciplining the bodies of children to be still, to sit in hard chairs or on hard floors, to be quiet and obedient to authority outside of themselves, to not be wriggly or to give into impulses and desires, and certainly never to *run* in the hallways. And of course they are being constantly fragmented and measured on individual performance of isolated skills (do you know your basic facts? can you read at grade level? can you keep a tidy desk?). Despite my sincere and intense efforts to create a classroom that feels 'softer,' that categorizes and measures less (or at least in a less obvious way), the children in my classroom seem more afflicted than ever by unnamed anxieties which surface in their anger and aggression and impatience with each other. I sense that they feel stressed and rushed and crowded in this space, and indeed, why wouldn't they? The population of our school, in one small building, is bigger than many small town communities. There is no place to go to be quiet, to have solitude, to think.

Ecologist Paul Shepard (2002) reflected on the possibilities of children's language emergence and development in relation to thought and belonging in the world:

> We've long supposed that in some vague way nature is good for children, but there's been relatively little close examination of what goes on in the mind and heart of a child who may ramble in the presence of insects and the whole range of plant and animal life. In part it has to do with taxonomy, with the spontaneous emergence of speech in connection with naming a large number of kinds of things, living forms as the basis for the skills of cognition and categorization. If we understood that process better, as well as the way it facilitates all our thinking later in life, we would attend more to those experiences of biological diversity and free space in childhood. (p. 252)

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On a fine and sunny day during the winter, we left our classroom and went for a walk in the little poplar forest near our school. I directed the children to take time to look, listen and feel, and to be quiet enough that other children could hear. I asked them to stay within 'sight' distance but within minutes some of them had disappeared over a little hill into the valley and I had to calm my anxiety and desire to surveille them and make sure they were 'safe.' I wandered through the forest and found them all. They were immersed in their explorations. They wanted to know why moss was only growing on one side of the trees. They noticed that the dried up red rosehips were the only bright colour and we peeled them open to reveal the seeds of life inside. They noticed the tracks of deer, rabbits, dogs and other people who had been here before us. They were incensed at the garbage poking out from under the crusty snow. When we returned inside, and once our eyes had adjusted to the dim light, we each found a spot to sit with our sketchbooks and remember our walk, to write some poetry. I was worried that they would say they couldn't, but the classroom was near silent for an hour. Then we shared. They had filled pages in their books. Language flowed out of them, pouring into classroom with images of crunching snow, pale blue sky, spindly branches poking the winter air, moss and bark, animal tracks, wishing for spring, and washing the red rosehip stains off our warm finger tips with cold melting snow. There was a fullness and a completeness to their thoughts. New thoughts. Not said before.

* * *

> Language is not a closed system of verbal forms, but a mode of poetizing, of allowing for the disclosure of new meanings, new forms, in our dwelling on or listening to the earth. (Fisher, 2002, p. 132)

Andy Fisher is an ecopsychologist who has reflected deeply on the meanings and consequences of what the (post)modern world has done with language. He describes the "tendency to locate meaning only in language, rather than in a broader process of bodily living-in-the-world that *includes* language" (p. 63) and the ways "our experience is also thicker, more 'intricate,' than any words, concepts, theories, or existing forms; these do not, in other words, wholly encompass our experience" (p. 64). He suggests that healthy, whole and grounded humans require an "extralinguistic space" in our experiences, with an "opening beyond our previous symbolizations" and that if we do not have this "the meanings we find in relation to nature can never be other than what our existing language-forms already say" (ibid.). What I understood from that simple brief walk in the woods was that many of the children in my class had never before spent time exploring in the woods without explicit purpose. They were *surprised* by the red berries and the animal tracks and the moss on the shady north side of the small trees. They formed a living, linguistic and embodied relationship with that tiny and not-so-natural space in the middle of their neighbourhood.

Applied to 'schooling,' Andy Fisher's (2002) important work brings insight to the inherent violence in what is being done to language and literacy in the effort to control and level programming (and children's development), particularly in relation to the shift from the 'Language Arts' to 'Reading' and 'Writing.' He suggests that "seeing language as a closed system cuts it off from its worldly source, turns it into a system without origins" (p. 130). Language is disconnected from the places of its emergence, connected to the land and to describing human experiences in places, and begins to float meaninglessly and measurably as leveled books to be successfully decoded by future workers. This has consequences for an ecological, embedded and coevolved earth. When I visited schools with pre-service teachers, I observed children in some classrooms un-engaged in reading leveled and prepacked books that had cost those schools nearly their entire materials budgets. Many of these books were of hideous quality and mass produced, as if the language and images in them made no difference as long as children were 'reading,' and not just reading, but 'consuming' as many books as possible in as little time, progressing 'up' through the levels. Often these schools had windows that looked out towards the grey, cold waters of the Bay of Fundy. Through this image rises a disturbing thought. As the child sits inside the school building beside the Bay of Fundy, reading about nothing in a book he or she arguably did not 'choose,' the whales and salmon in Bay are going extinct. This child's children might not ever see those whales. This kind of 'reading' is doing violence not just to the child, but to the whale, ripping them both out of their embodied relations to one another. And so, the child reads while the whale dies. What kind of separation and distancing is required for this to be possible? These are processes and forces of limiting and minimizing, closing and shutting, rather than unfolding and opening. This occurs not just inside the physical and institutional structure of a school, but also culturally and economically. Andy Fisher (2002) writes, "To be sure, the language we speak today is increasingly entwined not with rivers, moss, and turtles, but with a web of cars, TVs, and telephones" (p. 131). I know that our walk in the forest was not enough to entwine our language for more than a few minutes with the natural world. The most naturally arising topics of conversation in our classroom are about television, toys, and other material possessions.

five: *reading the earth*

Human stories are written over the earth's ground, lingering, in time, in place, for awhile, even as the earth takes them back in. This year in our classroom as we have studied rocks and minerals, learning about the time of the earth. We have studied pictographs and petroglyphs, human art on rock walls and in caves, tens of thousands of years old. The language difficulty in this learning conversation reared its head immediately. I heard in the children's speech descriptions of time as a line of development and progress; young children already articulating the idea that 'we' are smart and advanced and that humans who created this art were, well, not quite human – yet. They were constantly using the word 'caveman' even though I had not introduced it to them. Worse, I began to hear this language coming from me. One day after school I saw a 'picture' of time that I have drawn on chart paper during a class discussion – we had been trying to understand what 30,000 years meant – and I realized that my drawing depicted time as a line. Time as a line. *I am horrified.*

But as we studied photographs and texts in books, that language began to drop away. The children read and talked about what they were learning and from the photographs tried to sketch the pictures of bison, deer, and ibex in their journals. One afternoon, as we were preparing to paint, a student looked up from her drawing and said, "Our *ancestors* were *really amazing artists*! These *people's* work is so beautiful!" She shared her insight with the class. As the children worked to recreate the paintings of the caves of Lascaux, La Marche, Chauvet, and Altamira, it was like a distance had been closed and time folded in on itself. Those *people*, these human ancestors, who did that difficult work of grinding rocks and minerals for pigments, painting in near darkness, suddenly near to us, inhabiting this space. And then our classroom wall was covered with huge animals painted on brown craft paper, many of the paints we made ourselves by crushing charcoal and chalks. And we felt like we knew them across 40,000 earth rotations around the sun. Not that far, not so very long ago after all, their voices whispered to us.

* * *

I first saw petroglyphs as a young university student chosen to attend a Canadian International Development Agency funded conference at Trent University. On a fieldtrip one day, we visited the Peterborough Petroglyphs. So physically and emotionally moved by the images and stories carved into the rock, I had to leave the building. Stood under the pine trees, breathing slowly, outside. It has taken me many years to realize that it might have been the building, the cover, (the sarcophagus?) supposedly sheltering the art from the elements and preserving it that had shaken me. Something felt wrong in that crowded human-made structure full of tourists staring down at sacred images meant to be covered with tree branches and grass, uncovered only at special times by certain people. And never meant for *my* eyes to see. I remember the feeling of not being able to breathe. The building a violation, preserving the art yet separating it, tearing it out of its context of sun, moon, stars, forest, and generations of Ojibwa people who walked here and *still* walk here.

... an image of a woman, a large crack running up between her legs to her wide open womb, the rock crack pigmented red, bleeding into the earth, spilling out life into life, connecting her body to the ground of the life-sustaining earth...

* * *

This image of the woman's bleeding womb comes back to me many years later when visiting Writing on Stone provincial park in southern Alberta with the children in my grade four class. The petroglyphs there are designated a World Heritage Site by UNESCO. It is a place of exquisite natural beauty – the smell of the short prairie sweet grasses, the white silty Milk River, the sudden valley that drops out of the prairie, filled with sandstone hoodoos and flowering cacti even in the early spring. The sun shone warm on our heads. We walked the narrow sandy trails between the hoodoos. An archeologist brought us alongside a massive sandstone wall covered with carved petroglyphs, and told us stories. One, of a woman giving birth, with another woman between her legs and both upside down, held our attention for a long time. One of the children wept when the archeologist interpreted it as a story of death.

Our classroom that year was a stuffy portable trailer. With no windows.

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A photograph on an internet website about the construction of the Baku-Tbilisi-Ceyhan (BTC) Pipeline shows a 21st century geologist contemplating ancient carvings on rock walls (Caspian Development, n.d.).

◆

While researching biodiversity and extinction on the IUCN Red List website (International Union for Conservation of Nature and Natural Resources), I stumbled across a link that led to a site focused on documenting petroglyphs in the Gueghiamian Mountains in what is now Armenia (Hayknet, 2006). The tens of thousands of petroglyphs in the Gueghiamian Mountains are estimated to be between 3,000 and 9,000 years old. Who created them? What storyteller began this practice? No one remembers now. But the rocks remember. Here on the stones after millennia are written the stories of many generations of human beings and their living, their home. Still here, to read now. There are also standing stones, megaliths, rising above the earth, some with holes carved through them. What were they for? Images are everywhere. Animals running. Animals eating. There is one of a cheetah eating its prey. Plants growing. The wheeling sun. The hovering moon. People moving. People hunting. People playing. People dying. People domesticating animals. A horned deer being led on a rope. What was it like to write on this rock? Was the air clear and fresh, sweet with the smell of dust and grass, dry in the warm sun? Was there laughter, singing, crying, loving, fighting?

These rock writings have provided modern humans with an exceptional source of detailed paleobiological knowledge down to individual species of plants and animals. Paleobiologists and archeologists have learned about what life was like then in this ecosystem: what the weather was like, what plants grew, what animals grazed, and what animals have gone extinct (most of them). They learn about these human beings who lived here, their art, their practices, that they hunted, and domesticated animals – about their mythologies, and writing – and perhaps finally understand something about the human drive towards representation and recording our lives, towards communication and expression and aesthetics. Indeed, according to Armenian filmmaker Zareh Tjeknavorian, the Armenian word for petroglyph is *Aytzagrer*, meaning "goat-writing," most likely related to the high prominence of wild goats in the carvings (Naragatsi Art Institute, n.d.).

I think now of Josie and Jacob's gifts to me, their pictures and words and how this is no different than what these human ancestors were doing, leaving their language, their reaction, their creativity, their thoughts and experiences, their encounters with life and death, on the stones. They were telling their stories. Leaving a gift to the future, to us, to me. Is this not a literacy? Is this not writing and reading? How easy it might be to see these 'prehistoric' and 'bronze age' peoples as 'lower' on some kind of ladder of development and progress.

Could these stone scribes have imagined what is happening now to their descendents here? Not so many human generations later, compared to the age of these rocks, when complete, the Baku-Tbilisi-Ceyhan Pipeline will stretch 1,750 kilometres through remote and challenging terrain, from the Caspian Sea, through Georgia, Azerbaijan, and Turkey, skirting the troubled political borders of modern Armenia, to waiting tankers in the Mediterranean, to feed the world's (west's) demand for fossil fuels. Were these writers thinking that someone would be reading their messages 7,000 years in the future? Could they have imagined this geologist from far away standing here reading and trying to interpret the meaning, context and significance of their work? What was their sense of time and was it different from the linear time that drives this industrial project to consume this resource? No one can know this, of course, but it lays open to wonder the question of what signs and messages the humans alive today might be leaving for future generations. What words and symbols do we leave behind? What literacies? What marking of presence? What will linger after 10,000 years? Or is such a length of time simply unimaginable to present-focused, less-than-a-century lifespan, humans?

six: *teaching in the SUV period*

A cartoon by Adrian Raeside (2003), titled "Geology in the Year 3000," features two geologists standing before a high rock wall featuring layers of rocks and fossils. At the bottom is a layer of dinosaur bones, skulls, and teeth, with space between them, then layers of rock, then layers of fish and other bones, with space between them, then rock. And finally, a compact layer of huge vehicles, tightly crushed together, *no space between them.* And of course, capped by layers of rock on top. One geologist is saying to the other: "We call it the SUV period."

Although Adrian Raeside radically shortens the time it takes fossils and rock to form, his image does provoke interesting questions through this brief glance at the future. This image seems to hint that SUVs are already fossilized 1,000 years from now, and that it was just a period humans went through, already becoming part of the layers of the past. What, then, does it mean to be a teacher in the SUV period?

It doesn't make sense to imagine that human descendants will look back and say "that was the bronze age, that was the iron age, and the 21st century was the information and knowledge age," although this is the image of present-day time promoted by the technology and education industries. Rather, this time will most likely be seen as the age of the *loss* of information through the collapse of global biodiversity, which is a loss of genetic knowledge and also of human linguistic and cultural knowledges related to places and species. Joe Sheridan (2001) writes about the ways that human language and knowledge and stories are embedded in place, how they arise out of place and do not exist in the absence of a place of its destructions: "myths complete ecosystems" (p.197). In this way, human language and knowledge are ecologically situated. That is why it is difficult to interpret places like Stonehenge, or the petroglyphs in Peterborough or Armenia, or the cave paintings in France and Spain. The context has been lost and the places severed from their human-defined meaning in *that* time. So when a place or a species dies, the language and stories that belong in that place are also lost. Sheridan writes: "Let me explain, that the voices of the forest and the mythtellers were both clear-cut when enough people had lost that sympathetic correspondence" (p. 198).

What are the possibilities for language, storytelling and mythmaking in schools then, if the world is dying all around, if the voices of species and cultures are lost forever? What is the meaning of that tiny forest (we're lucky to have one!) outside the back of our school, surrounded by large homes and SUV-driving consumers? In the city park on the ridge above the school, the city's parks department has constructed a mini-Stonehenge of standing stones. They crouch there strangely, casting shadows on the mowed grass. It is hard to know what they signify.

The next generations of humans might call this time the radioactive age, however, considering the current absence of knowledge about what to do with nuclear waste materials from power plants and weapons production. Even now as I write these words, those extreme engineers will be getting ready to attempt to cover Chernobyl with its new sarcophagus, leaving the real clean-up to the future peoples of the planet. Even now as I write this, the nations of the world argue over who has the right to atomic energy knowledge and production.

seven: *Nevada spikes*

In this time, radioactively speaking, a literally monstrous archeological anthropological project is underway in the desert of the Nevada Mountains. On July 23, 2002, United States president George W. Bush signed his name to the controversial bill that could eventually allow at least 70,000 tons of radioactive waste and plutonium to be buried under Yucca mountain and it is "expected to remain toxic for up to 100,000 years" (Pollon, 2002, p. 8; Lindlaw, 2002). The U.S. Department of Energy describes the site as a "long-term geologic repository for spent nuclear fuel and high-level radioactive waste. Currently stored at 126 sites around the nation, these materials are a result of nuclear power generation and national defense programs" (U.S.DOE, n.d.). The DOE describes Yucca Mountain as being in a 'remote desert' location, although it is only 100 miles from the city of Las Vegas.

While construction of this project is underway, controversy over it is leading to delays and the possibility of the waste being stored in casks for many decades, until someone (the children's children's children?) can decide what to do with it. R.C. Baker (2002) named this project "deep time, short sight" or "Yucca Mountain's Nuclear forever" (n.p.).

Although the stored materials are expected to be "lethal for at least 100,000 years" U.S. Environmental Protection Agency regulations stipulate that warning signs at such a site must be capable of lasting at least 10,000 years into the future, and that "waste destined for these sites be kept safe from the possibility of exposure for 10,000 years" (Frauenfelder, 2005, p. 92), a time span that is considered by scientists to be a "bureaucratic convenience" (Baker, 2002, n.p.). Pollon (2002) sums up the difficulty presented by preparing such warning signs in one sentence: "Given that climate change could one day transform the desert into grassland, how can we prevent tomorrow's scientists and explorers from disturbing the site, especially if our present languages and cultures have ceased to exist?" (p. 8).

In the chapter on Chernobyl, I briefly discussed the work of the 'Futures Panel,' appointed by the U.S. Department of Energy to "design a visible, passive, durable, and persistently intelligible warning" (Pasquetti, 1997, p.78). This turned out to be a wretched assignment for these intellectuals, and resulted in depression and extreme cynicism as they struggled to complete their task of developing this warning system for future humans (Frauenfelder, 2005). Pasquetti (1997), a geographer and a member of the panel, reported that the team was constantly blocked from raising moral and ethical questions. He highlights the irony of "landscapes of waste" – that while some people are engaged in preserving natural areas for future people to enjoy, others are trying to build areas that future people will know to avoid.

The Futures Panel's conclusions do not benefit the nuclear energy industry: "Worry about distant-future hazards can be truly reduced in only one way: avoidance of hazardous-waste production" (Pasquetti, 1997, p. 88), and "attempts to develop permanent landscape warnings for long-lived hazardous waste only underscore the futility of the exercise" (p. 89). That is, any possible warning system created by humans will never outlast the permanency of the nuclear wastes about which they are designed to provide warning!

However, the Futures Panel did give advice to the 'Markers Panel,' consisting of more intellectuals, archeologists, anthropologists and linguists, charged with developing the warning signs which they hope humans in the future will recognize as signs and be able to "decode," "read," and interpret. But with what language to communicate this terrible danger? Their ideas included a "landscape of thorns" consisting of tall black rock spikes growing out of the earth at various angles, a granite information kiosk inscribed with images of screaming and sick faces and scientific and mathematical formulas for calculating the site's toxicity through time, huge cubes of black stone narrowly spaced and too hot to provide shelter from the sun, and thousands of buried granite tablets with warnings carved in six official UN languages, one aboriginal language, and space for future people to continue to carve their languages (Pollon, 2002; Baker, 2002; Frauenfelder 2005).

In the end, the DOE chose the cheapest design: "a 33-foot-high earthen berm, half a mile square, studded by granite monoliths inscribed with warnings and pictograms of radiation danger. It has incorporated the experts' ideas for an information kiosk; high vantage points from which to survey the entire danger area; radar-reflective trihedrals; and small buried markers to warn against excavation or digging" (Baker, 2002, n.p.). Designers' sketches of this project are reminiscent of any design for a monument or national park. It is eerie and strange to think of the meaning and scope of this, and the futile feelings of the panelists as they faced the multi-millennial, thousands of generations long implications of their work. Facing this as a teacher feels also futile and cynical – while these scholars try to think of ways to 'write' so that humans in the future might read this communication, a very real and troubling problem that will not go away, in school I face the problem of the diminishment of language processes to their very smallest parts, perhaps initiating a true literacy crisis so severe that children alive today will not be able to interpret those warning signs as they can only read the leveled books assigned to them from outside their own locations.

eight: *Rosetta project*

The work of contemporary anthropologists and linguists is revealing a startling loss of human language and cultural diversity that mirrors the present extinction rates of species of animals, insects, and plants, particularly in the diverse equatorial regions of the globe (Nettle & Romaine, 2000; Crystal, 2000; Crystal 2004; Davis, 2001). Current estimates predict that somewhere between fifty (Crystal, 2004) to ninety percent (Nettle & Romaine, 2000) of the approximately 6,000 languages now spoken in the world will not be spoken by the year 2100. David Crystal (2004) calls this loss "cataclysmic" (p. 47). The role of English and other major languages, along with colonization and economic globalization, have had great eroding power on languages spoken by small cultural groups. Many of these languages – about 2000 globally – have no written form, and so when the last speaker dies the language disappears forever. David Crystal explains that a spoken language "leaves no archeology" and so "it is as if it has never been" (p. 49). He believes that if English were the only language left, it would be "the greatest intellectual disaster that the planet has ever known" (p. viii). Along with language disappears the knowledge that it held, especially related to the land that birthed those tongues and bodies. The ecological embeddedness and connectedness of language, place and life, and their co-emergence in time and human community, is difficult to ignore in the face of this. What is the meaning of this loss of diversity for the life spirit of the human species?

In a CBC interview in 2003, Bob Geldof spoke about how in the year since he had last visited some communities in Ethiopia, several languages in the area had disappeared. He said, "I never heard these languages but I miss them already." *Missing them already*, these ways of speaking are a common human history, a legacy, the ecology of a collective knowledge of a species. They are the sign of human creativity and diversity. And in this sense, the ecosystems of the entire planet are weakened by this loss of genetic and cultural information, embodied and embedded knowing and ways of speaking about the names of things in the environment that is our home. Our only home. *All the language in the world.* Perhaps we lose the connection to that bone, to the moss, to the filtering light, to the spider's weaving. It is a late time for beginning to recognize the importance of diversity and multiplicity for creative environments, both literally and symbolically.

In response to this "linguistic crisis" (Crystal, 2000, p. viii), and drawing on research groups at many large research institutions internationally and sponsored by Stanford University Libraries, the National Science Foundation, the National Science Digital Laboratories, and the X Long-Now Foundation, the Rosetta Project is a massive linguistic diversity mapping project, recording as many human languages as possible (that exist in written form) – about 1,000 of 6,000 languages – onto disks meant to last at least 2,000 years and intended to be scattered in mass distribution over the planet (Rosetta project, n.d.). The 'stones' are a Nickel engraved disk – an "extreme longevity micro-etched disk" (www.rosettaproject.org/live/concept) – with a holding container that is a 6X magnifying glass, meant to entice and show future people how to read the disk, but to read all the information on it requires a 1000X microscope. One prototype disk has already been sent into deep space! For whom? The inspiration is, of course, the original Rosetta stone, dating from 196 BC, and hidden in a stone wall for 2,000 years, which was found in 1799 by Napoleon's soldiers in the Egyptian town of Rosetta. It was written in three languages – Egyptian hieroglyphics, demotic (a more modern form of Egyptian writing), and Greek. The Greek translation was the archeological key to deciphering the hieroglyphs throughout Egypt (Wells, 2003). The new Rosetta stone is a form of linguistic memory – intended to create a record of the biolinguistic diversity of the early 21st century, to show to future generations and to act as a translational tool for forgotten – lost – or extinct – languages.

I encounter in myself a sense of speechlessness – a loss of language – in the face of this project. Is the source of this silence hope? confusion? awe at a heroic gesture? or grief in the sudden realization that even in the moment of its creation so many of the diverse and beautiful ways of human knowing and speaking are slipping away, literally dying, with no mouths left to utter the words, and that the related ecological environments that first gave birth to those words are also being lost forever, with all the knowledges and stories that belonged in those places. So these new 'stones,' like all stones, and fossils, and life, and bones, carry in them a message of finality, of limits, and the reminder that all things in this world eventually come to an end. But *this* death, with its roots in the West, in modern industrial and economic human life, is especially hard to bear.

The four examples, the SUV period, the thousands-of-years-old petroglyphs, the Nevada Spikes, and the new Rosetta stones, might raise urgent and perhaps disturbing questions about educational philosophies, policies and practices. What does this mean for work with children and language in classrooms? In what ways do schools contribute and participate in these extinction processes, whether language, culture, or species? In the face of such catastrophe, what are ethical ways of living together, in schools and in communities? Facing these examples reminds of the complexity and deep embeddedness of human language and wisdom through time, of its astonishing variety and complexities (might this be called 'literacy'?). More than this, facing these examples means facing the fragility of all life, culture, and language on this planet, and awakening to the possibility of the death of it all.

nine: *dislocations*

Suddenly my mother's reflection about *all the language in the world* being connected to that bone takes on new and deeper meaning. All my worries surface about the implications of my own work as a teacher, about what I am doing to children, about what this is doing to the world. All the focus on individualistic and utilitarian outcomes, the renewed interest in 'easy' ways to learn (if the right method could just be found), the control of teachers' professional lives through fear and measurements, the constant talk of accountabilities, all this begins to wear, to make *weary*. It seems an erosion of possibilities to perhaps never be retrieved except as melancholy longing by the elders in the profession, or remembered at all by a new generation of teachers. They are so tired already.

Is there a correlation between the current reductionism and monocultures of economic and scientific commercial thinking and the new reductionism that is sweeping through schools in North America ringing with the phrases 'preparing for the future,' 'a quality teacher in every classroom,' 'no child left behind,' 'every child can read,' and 'literacy crisis'? The implications of these short but powerful phrases are to terrify, to separate and distance from the ground, from relations, from the vast and complex history of human language (or mathematics, as another literacy), the wonder of its emergence and diversity through times, and places and cultures. Under such a view, certain children, maybe even *many children*, become "liabilities" (Heather-jane Robertson, 2006, in Froese-Germain, p. 5). Like weeds, they become a problem in the system, a problem for measurable productivity where diversity and difference are not valued as much as standards and standardization. Children like Josie and Jacob who do not do 'well' keep it from running smoothly. They give the whole business a bad image, and might make teachers feel (and measure) like failures in the enterprise.

These systemic pressures have the power to subtly (and not so subtly) alter teachers' pedagogical practices, even against our own strong ethical beliefs arising out of our lived and embodied relationships with children. Janice Gross Stein writes that "variation, experimentation, creativity, and even diversity can slowly leach out of the educational system as it responds to pressure for 'results' that can be measured" (in Froese-Germain, 2006, p.6). Her choice of the word "leach" is appropriate here as a metaphor for unhealthy ecological environments, lacking nutrients and diversity and renewal. Nothing more will grow in the leached soil. A wasteland is created. Life is lost. In this sense, the true cost of standardized educational spaces might reach far beyond the walls of a school building and point towards a relationship with ecological crisis. The loss of diversity is epidemic and endemic.

Diversity and creativity are fundamental characteristics of healthy ecological environments; that is, environments that thrive, grow, change, adapt, evolve, and are strong and resistant to pressures, changes, and fluctuations in energy and resources. Vandana Shiva (1993) has documented the ways that dominant knowledges erase local knowledges (make them extinct). She argues that the reductionism and standardization models of the modern (and western?) scientific and economic systems, especially as applied to agriculture or forestry, have led to the development of the idea that diversity is abnormal, a form of chaos and disorder, and that uniformity and standardization are normal and good. More importantly, she focuses on the ways that monocultures, while they might seem temporarily economically useful, are fundamentally dangerous to the future of life, displacing all diverse alternatives and being intolerant of other systems to the point of causing extinction around themselves.

Traveling across Canada and visiting dozens of schools in three provinces, I have witnessed this monoculturalization of schools, the sameness from place to place. No matter the ecological and cultural diversity that existed in each community, there was an obsession with 'reading,' with which 'program' to use, with getting enough computers so that children would be 'ready,' and an emphasis on single-minded sorts of achievement. I recognize it in my own classroom and school every day, and perhaps it is an impossible dream to hope for something else under such dominance, and yet I seek those cracks and spaces for something else. If education really were imagined as a bringing forth, as being present at the emergence of wisdom and learning, then it seems that an ethical and ecological pedagogy of literacy and language would open out in creativity, movement, love, thought, understanding, challenge and *especially* in making room for and recognizing difference – and not in labeling it as a pathology to be analyzed and solved. It would make the world seem bigger, create more possibilities. It probably would not divide children by category, ability or levels, and instead would enable them to live their lives with desire and passion, in communities of care and togetherness, in presentness to their own and others' aliveness. Including the otherness of other species of life. It would let them know that they can never master language or knowledge and that they might only strive to be joyfully in it. To be interested. To think. To be in the journey of life and self and other. Pushing back against monoculturalization would not be about schools 'going green,' or seeking out possibilities to 'make a difference' in the world without also paying attention to the inner world of the school community, and to its locality in time and place.

Maxine Greene (2001) writes about the difference between what she names *aesthetic* education and *anaesthetic* education. The aesthetic she names as a commitment to the processes of the "growth of mind and spirit" (p. x), to beauty in the world, to recognizing it and knowing it, to creating it as well as providing spaces for the aesthetic impulse of a human being(s) to flourish. Aesthetic education nurtures "appreciative, reflective, cultural, participatory engagements" (p. 6). Anaesthetic, on the other hand, she calls, a "numbness, an emotional incapacity, which can immobilize, prevent people from questioning, from meeting the challenges of being in and naming and (perhaps) transforming the world" (p. x). She urges teachers to live in a "state of wide-awakeness" (p. 11). Psychiatrist R.D. Laing (1990) wrote that:

> The condition of alienation, of being asleep, of being unconscious, of being out of one's mind, is the condition of the normal man. Society highly values its normal man. It educates children to lose themselves and to become absurd, and thus to be normal. Normal men have killed perhaps 100,000,000 of their fellow normal men in the last fifty years. (p. 24)

This alarming thought carries in it implications about the extent of the pervasive unconscious entanglement of schooling in both historical and contemporary social processes of the normalizing of violence and the separation of the person, the spirit, from the earth and the *Others* alive in the present and future. Educere or seduce? Awake or asleep? Alienating and leading away from the ground, from the self, or being present? Maxine Greene's (2001) encouragement towards "wide-awakeness" encourages a deeper cultural and aesthetic engagement, a kind of vigilance and thoughtfulness towards events as they unfold, particularly in their relation to education and the work of teaching. This may be the most difficult challenge of contemporary teaching – finding through curriculum, interpreting and being with children ways to engage the meanings and implications of the increasingly powerful shift towards instrumentalism, reductionism and corporatization of public and individually private spaces based on assumptions that life can be made, controlled and engineered. In particular, to seek, recognize and protect beauty and mystery in the midst of these pressures is a grave and sometimes seemingly insurmountable difficulty.

Vandana Shiva (1997) insists that an alternative to an engineering paradigm is organic and ecological, a paradigm of a growing (but not in the way that a bank or multinational corporation means by 'growth') space that requires place, freedom, diversity, renewal and reciprocity. She describes the way self-organized communities, whether plants or people, grow from within, but an externally engineered system is made from the outside. They do not grow, but rather are a colonization of "the interior spaces" (p. 5). Self-organized communities' strengths lie in their creativity and innovation, bringing more diversity into the world. Vandana Shiva's immense challenge to humans in the 21st century is that we work, wherever we are, whatever work we do, on building alternatives to engineering views/visions of life, that resist "the ultimate colonization of life itself – of the future of evolution as well as the future of non-Western traditions of relating to and knowing nature. It is a struggle to protect the freedom of diverse species to evolve. It is a struggle to protect the freedom of diverse cultures to evolve. It is a struggle to conserve both cultural and biological diversity" (p. 5). Vandana Shiva's ecological wisdom and her challenge to confront the rise of monoculturalization might provide educators with an alternative and sturdy philosophical ground to stand on when speaking back, when confronting the reductionism that infiltrates schools. Of course such standards and programs to 'fix children' might improve certain measurable results, but what is at stake is *life itself*, the real future of these children and the Others which is something worth caring about and for.

ten: *towards a loving curriculum and a literacy of relations*

Catherine Keller (2002) speaks beautifully and poetically about knowledge *as love*. This thought might be extended to language as one of the foundations of human knowledge and thought. *Love.* She cautions against thinking about knowing as something that can be mastered or controlled, because knowledge (language) is always *a relation* – something that occurs and arises in dialogue. Like the pictures and stories I received from Jacob and Josie. Like a natural system, seeds growing in fertile soil under the sun and stars. Mutual and multiple dependences and relationships string everything together. *All the language in the world.* David Loy (2003) also names interdependence *love*. He writes, "Realizing our interdependence and mutual responsibility for each other implies something more than just an insight or an intellectual awareness. Trying to live this interdependence is love. Such love is much more than a feeling; perhaps it is best understood as a mode of being in the world" (p. 108). And bell hooks (1999) suggests that "To be guided by love is to live in community with all life" (p. 119).

◆

So, if language arises out of our connection with the community of life, out of all of our relations with one another and with other species who share our habitat, and if it is an act of naming, creating and loving life (and our own lives), then language as ecology means language is our habitat – we inhabit language as it inhabits us. Language is always everywhere. We are language. It is not something we 'cover,' but it is in us and through us, and it is our habitat and the world, as much as plants, whales, planets, as we are embodied as part of that world. All of it finite, with ecological limits and its own fragile mortalities.

◆

Catherine Keller (1993) describes the shared roots of the word ecology and economy thus: "The Greek word oikumene from which 'ecology,' 'economy,' and 'ecumenism' stem, makes *oikos*, home, into 'the inhabited earth'" (p. 46). Ecologically speaking, she points out, there is nothing alive that is not home to other living beings, including the human body. But these globalizing homogenizing forces that are also trying to enslave and control education are unrooted, forgetful of home, forgetful that that "the home of the human species is the planet. The ravaged air and water and earth are the elements in which we move and live and have our being. We can't keep the weather out. There is no 'out'" (ibid., p.35). These forces are unrooting, unrelated to time and the very ground – and human bodies and labour and species and resources – that sustain (or unsustain) its energies. This kind of economy – this *oikos* – cannot be our home because it cannot sustain the world. And what is education for, but to learn to be at home in the world, in place and time, with other, with ourselves, with the relations that are life? Neil Evernden (1996) insists that ecology as a scientific discipline requires the involvement of the arts to emphasize the "literal interrelatedness" of life, "the intimate and vital involvement of self with place" (p. 103). For himself, he says that "preservation of the non-human is a very personal crusade, a rejection of the homogenization of the world that threatens to diminish all, including the self. There is no such thing as an individual, only an individual-in-context, individual as a component of place, defined by place" (ibid.).

Echoing Maxine Green, Peter Berg (2002) encourages developing an "inhabitory consciousness" (p. 206) – that is, reinhabiting living places that support our lives, knowing about the place where we live and walk each day, knowing the natural systems around us and relating to them. For schools, ungrounded places where we might fly above the ground towards the future, distracted and distanced from these relations as if they do not matter, connecting with the source and support of our breathing, eating, living and dying, might awaken us out of our "disinhabitory coma" (p. 207).

If ecology is about being at home in the world, not at home in a competitive economy or a disembodied and disconnected information age but in the world itself, then an ecological classroom – as a growing classroom – is a place of embodiment, emergence, intermingling, embeddedness and diversity. *Difference* is difficult. Catherine Keller (1996) writes that the "difficult interplay of differences remains cause for hope. After all, it is an ecological rule that diversity nurtures resilience, and thus sustainability, while monocultures, purged by poisons and highly productive for a while, succumb first to drought and disease" (p. 240). This applies to classrooms, to language, to the intermingling of language, culture and ideas in that place. Maxine Greene (1988) asked *in which direction will we steer life?* This question implies openness, room to move, the responsibility to make decisions, in this moment and the next one, about how we will live, and how we will be together. It says that the future is yet to be decided, always. It is not fixed or inevitable. The world is still in creation.

And what is the alternative? A monoculture? The colonization of the interior? This is the way of dominance and mastery, of domestication and standardization, of so-called measurable progress, exactly what brought about this ongoing catastrophe in the first place. Maxine Greene's question means that by deciding to steer life in certain directions, we participate in caring for life *now*, which is a way of caring for the future. Although in the face of ecological crisis in all its many manifestations I might feel helpless, tomorrow in the classroom I can choose to steer life towards the aesthetic, the diverse, the good, the poetic, the just, even if only in tiny actions. Hope (not optimism) lies in the fact that curriculum, like any text, is interpretable. In our learning, the children and I can bring it alive, ground it, put down its roots in the ground of our living. We recontextualize it through our work, our relationships, our conversations and sudden insights. By itself, and the politics that have created it, with its words, curriculum and mandates may be narrow or utilitarian, but through our interpretations, our readings of it, we can crack it open, plant seeds of life and renewal that will work to break it, to grow, and find joy, community, love, patience, forgiveness and generosity. Indeed, I see these seeds every day and struggle against the leaching of the soil to grow them.

The place to resist might begin in our own learning spaces. Where we are. When we are. To grip onto visions and practices that view language and knowledge in broad and open ways, as a multitude of practices that embody learning. To imagine literacy in the true sense of becoming, over and again, a wise, thoughtful, learned person. Its foundation lies in the arts, poetry, interpretation, reading and writing across all discipline knowledges, or carving pictures on cliffs, or painting on cave walls. Being at home in the world, we find strength and courage to speak for pedagogical spaces that are good for all children, whether they write about Spiderman saving a moose from dinosaurs, struggle to speak but communicate their great big thoughts through drawing, or share their life's meaning through the discipline of their body's dance.

Thinking about the work of teaching and learning in a growing rather than engineering paradigm is to understand it as ecological. Contingent. Difficult.

Mysterious. And not reducible. The relations that hold it together go all the way up and down and wide. They could never be completely known or fully understood, with any kind of analysis, measurement, and protecting this mystery, creating a space for it, and living in it is part of the amazing work of teaching, and the dignity of the work, too. Thinking about education as ecological is to understand it in the larger cycles of life on the planet, including cycles of destruction and regeneration in nature. It is to understand that humans are mortal beings with limits. It is to understand that a healthy environment is not about competition, dominating or colonizing but about cooperation and growing together. Fostering and providing places for the flourishing of diversity and creativity will hold the future open. This is an urgent calling for sustainable teaching and learning, grounded in the ground of life, to keep life itself alive.

David Jardine (2000) asks this important question: "(W)hat constitutes, for example, a sustainable and generative understanding of the ways of language and texts and reading and writing" (p. 49). This is not a fully answerable question, because the answer depends on a lot of things, local things, ecological things, like where we are and who we are. And *when* we are. It might provoke the difficult question of what educational institutions in this time are doing to children in the name of education, language, literacy, civilizing, progress and economic growth. Children arrive at the door of the school possessing their own integrated and embodied knowledge and language about the world. Will the interiors be colonized by well-meaning practices? In our teaching, professional development, and personal lives, we can explore and experience together the possibilities of resisting engineering technical approaches to being in classrooms. How do we experience in an embodied and spirit-filled way the kinds of work that can emerge out of dialogical organic spaces created by global and local events, literature or ideas? Thinking side by side together (Readings, 1996), a dialogue emerging through a creative process, not known before hand, through our relations. Ecologically. Situated in the here and now, in the day-to-day dailiness of living together. Not planned, forced, coerced, engineered, or known ahead of time. A classroom community is always an unrepeatable ecological event in time and space.

Catherine Keller (1996) writes: "If we recognize a persistent spirit of the possible in the cocoon of the moment – not in the hard core of some scientific utopia – we might trace from it the course of a vast intersubjective process" (p. 125). This is what we are engaging with in classrooms. When we read, when we write, when we create, when we engage in dialogue with diverse and different others, we enter this vast intersubjective process. An ecology that is already in existence. Through which something is created – emerging through the relations – and generated and regenerated and kept alive, kept in motion, though not the motion of progress like a line, but a motion that is more like chaos, that cannot be so easily measured or traced or one story told of it afterwards.

When Maxine Greene (2001) refers to the work of teaching as an "ongoing obligation to do justice to multiplicity and difference" (p. x), this could be interpreted as both an ethical obligation and an ecological obligation to the future and to the past through each moment we are alive. This obligation is a profound interpretive gesture that is watchful, emergent, poetic, meditative, and not in a hurry to get someplace (like to the future world of work). It means trying to keep alive a vision of the future – and this moment – based on justice and sustainability, in the knowledge that our relations matter, that intermingling life cannot be covered up with categories, quick-fix programs called 'reading recovery,' or even curriculum subject area specialization.

As the human species, as languaging beings, we are embedded in complex living systems. Relational and growing (and dying) systems, not engineered ones. Our lives, and so much life, depend on it. Because of this, in education, we have a profound obligation to our relations, language, to knowledge and to the future (and to our relationships with children in each moment), which transcends the bounds of institutions or politics or disciplines. An obligation to live – with children – in the midst of the most difficult questions and to not try to finally answer them or put them on a test, or reduce them to a few easy steps or techniques, so that our classrooms are also places, like that bone and forest, for the resting of all the language in the world. And we are deeply obliged to it, to the living connected to it, to loving and protecting it, and creating a space for its emergence in our midst.

6

credo –
towards a pedagogical poetry of being

At the same time as I finish writing this dissertation, another school year also comes to an end. The hallways go abruptly silent, classrooms are packed up, and all the rushing stops for awhile. In this interstitial time of rest, reflection, and waiting, and in lieu of implications and final conclusions, I wish to affirm my own *implicatedness* in and commitments to pedagogic journeys and practices. From the process of this writing, new insights and commitments to personal pedagogic practice and purposes have arisen. In looking forward, then, to the next school year, the following are hopes, commitments and promises to prepare my heart and mind for the arrival of a new community of children and new possibilities for the ecologies of our embodied belonging together.

one

I resolve to deliberately and consciously find ways for my classroom community to be more often and more meaningfully outside the school building, to be *outside* in mindful ways, with the purpose of learning together with children how to listen to the voices of the non-human world and to one another in new ways.

The purpose of this is not to reinforce a dualism that might be perceived to exist between the inside and the outside of the classroom (i.e., not classroom and humans *inside* and nature *outside*), but rather to remember that the classroom community is already an ecology in existence, a growing and diverse ecosystem in its own right that belongs in the larger cycles and ecosystems of the planet. Catherine Keller (1996) writes that "Any imaginable site of human social relations is at the same time a complex of multilayered inorganic and organic relations" (p.175). If the institution of education reinforces a vision of separate and independent individuals, and if it reinforces the market logic that is undoing the planet and destroying life and human communities, this then is my personal commitment to a belief that such logic can also be deconstructed from within the classroom space itself by continuing to consciously seek and practice ways to have felt ethical reconnections with the sources of life and with one another. It is a commitment to spending more *time together* where there is more *space,* for the creation of more diverse relationships and connections and for what Andy Fisher (2002) calls the relocation of the human psyche in the processes of life. I believe this remains to me the greatest challenge to my own pedagogy and perhaps for contemporary pedagogy in general.

two

Within the context of my work as a teacher, I want to pursue more deeply the idea advanced by Vandana Shiva (2005) that 'work' can be understood as a form of 'worship' and as such can be a place where spirituality, sustainability and justice come together. She describes the spiritual philosophy of Basava, a social and religious reformer in the 12th century in south India who rejected the caste system and gender divisions. The core of his philosophy based in social justice was "*Kayaka* (work as sacred) and *Dasoha* (giving and sharing as sacred)" (p. 34). Vandana Shiva believes that the principles of *Kayaka* and *Dasoha* are violated "by the new caste system of corporate globalization" (p. 35). Because school as a contemporary institution is so literally focused on preparing children to be individual future workers and consumers in this global economy, attempting to understand the 'work' of teaching as spiritual work, justice work, and sharing work might just be another way to deconstruct and re-imagine pedagogy from within. As a vision, a possibility, it might just be a way for me to imagine how to continue to 'work' within this institution, because this other vision of preparing children for the future of work is not one that I can support or in which I believe. It violates my personal sensibilities that tell me that life, and therefore schools, are about something more sacred. The idea that work is worship might compel me to remember that not only the 'work' that I do as a teacher, but the 'work' that I allow children to do in this classroom should also be sacred enough to be given and shared, meaningful, not a violation of the sacred mystery of their (and my own) becoming.

three

I will actively and passionately continue to pursue what it might *look like* to 'live' in schools in the meditative awareness of some of the temporalities I have explored in this writing. The purpose of this is towards the cultivation of a presentness in our classroom space where I attempt to no longer inflict the anxieties and pressures of clock time on the embodied lives of growing children who come into that space through no choice of their own. This means trying to imagine the classroom into a different economy (*oikos*) and timing of living together, not the one that is bound by the violent movement of time as a line that is grinding life down. This means a focused and deliberate attempt to stay near to the ecological urgencies of the present. This means working to undo personal habits and struggling against institutional pressures to conform in certain ways. Even as I write these words, I know this is a difficult and perhaps impossible journey. And yet, I understand *the trying* to be an ethical obligation: that imagining and opening poetic and spiritual horizons by consciously pushing a wedge of language, practice and other temporalities into the classroom space might be a way, moment by moment, to transform the institution (or at least my own classroom space) from within and to participate more sacredly in the unfolding community of life.

NOTES

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[i] "A satellite called the Wilkinson Microwave Anisotropy Probe recently captured a glimpse of the residual radiation from the young universe, when there were no galaxies, only perturbations in a seething, expanding cosmos. The data give a precise age to the universe: 13.7 billion years." (Achenbach, 2003, n.p)

[2] Although the very language of 'preparing' comes with its own troubles, I explore it here in an attempt to unsettle and deconstruct the ways it is used in contemporary education.

[3] Extinction is a radical closure in the evolutionary lines of life. With each extinction, *the future* of that particular species becomes closed. Life does indeed go on, but not that particular species with all its possible descendents and future openings. As an absolute ending, "Extinction (is) a terminus more drastic than death" (Baxter, 2002, p.82). With a mass extinction, many possible futures are closed and the loss of genetic diversity has enormous implications for the future possible evolutions of life on the planet.

[4] Thank you to Dr. Shula Klinger, in personal conversations, for this orienting thought.

[5] The finite is capable of grasping the infinite.

[6] The definition of this word was found on the following website: http://www.greatcanadianrivers.com/rivers/john/john-home.html retrieved Wednesday January 2, 2007.

[7] Catherine Keller has conducted important theological, theoretical and deconstructive work from within her own tradition as an eco-feminist Christian scholar. She argues that apocalypse is a code embedded in the western culture's subconscious. She defines it as "a multidimensional, culture-pervading spectrum of ideological assumptions, group identities, subjective responses, and-perhaps most interesting of all – historical habits" (p.xi, 1996).

[8] Kara McDonald, personal conversation.

[9] The culture of surveillance and monitoring is clearly articulated in the final sentence of an Alberta School Board Association document prominently posted on Alberta Learning website titled "Students are our Bottom Line" (ASBA, 2004, p.79). This document is saturated with the language of "helping teachers" and "shaping young people." Citizenship is considered "soft." The document states: "The challenge boards face is to find an appropriate way to measure and track student performance on the so-called "softer" aspects of personal development, such as citizenship. While the challenge is difficult, it is not impossible. Through a cycle of practice, reflection

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and improvement, boards can sharpen their abilities to measure and track student performance in a variety of domains, not the least of which is academic achievement. Failure in this task is not an option in that students depend on our collective ability *to monitor their total development* and then make improvements in our practices where necessary" (p.79).

[10] There are, of course, as in any space, competing messages and in these we might place some hope. Although in some places the posters are hanging in children's spaces, in my own workplace as I write this, children do not see these posters, only teachers do. In my work and learning place, there is great emphasis on children's work, representations of children's thinking and art being beautifully and respectfully framed. And in the hallway hang placards showing our school's participation work with a global charity, a great point of pride for many children as they concretely see that they have changed the world with their own hearts and hands.

[11] Paleontologist Stephen Jay Gould's work, particularly his book *Wonderful Life*, about the Burgess Shale, is particularly helpful in understanding and deconstructing how this myth arose.

[12] Paleontologist Dr. Godfrey Nowlan at a teacher professional development workshop ("Rocks and Minerals," Calgary Science Network, February 4, 2006).

[13] The Chernobyl Forum is an initiative of the International Atomic Energy Agency, in cooperation with the WHO, UNDP, FAO, UNEP, UN-OCHA, UNSCEAR, the World Bank, and the governments of Belarus, the Russian Federation and Ukraine. The Forum was created as a contribution to the United Nations' ten-year strategy for Chernobyl, launched in 2002.

[14] "In the mid-1990s, public debate about the number of Chernobyl-related deaths was dictated by different interests and became a sometimes *macabre battle*."
Astrid Sahm, writer, Research Associate in the Department of Political Science and Contemporary History at the University of Mannheim, deputy Chair of the "Leben nach Tschernobyl" association in Frankfurt a.M.
http://www.chernobyl.info/index.php?userhash=19304793&navID=191&lID=2&statementID=38 (retrieved January 7, 2007).

[15] For more information about this composer and concert see:
http://www.music.utoronto.ca/Faculty/Faculty_Members/Faculty_A_to_M/Christos_Hatzis.htm

[16] He refers here specifically to the destroyed city of Pripyat, from which 50 000 people were evacuated within 3 days of the accident, never to return. For more of Dr. Harash's writing see: http://www.wsu.edu/~brians/chernobyl_poems/harash.html.

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[17] Jane Caputi, a feminist scholar, has written extensively of the sexualized and phallic language and metaphors used in the nuclear industry to describe the technology. See, for example, her chapter in the book Ecofeminism and the Sacred (Carol J. Adams, ed. 1999).

[18] see: http://www.aecl.ca/kidszone/atomicenergy/environment/index.asp (retrieved January 21, 2007)

[19] Catherine Keller (1996) goes on to warn that gender justice must be part of this "communing complexity" or it will be "insufficient" … "'justice' will justify public apocalypse unless gender justice works its way into the integral complexity. Otherwise mercy and love get left to the mother-worlds of private relations and soft moments" (p.302).

[20] The seeds of this meditation were first explored in a graduate course at the University of British Columbia with Dr. Ted Aoki, when I created a photo/poetry essay that meditated on this bone(s) we found in the forest.

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